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Where Language Touches the Earth: Folklore and Ecology in Tohono O'odham Plant Emergence Narratives

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WHERE LANGUAGE TOUCHES THE EARTH: FOLKLORE AND ECOLOGY IN TOHONO O'ODHAM PLANT EMERGENCE NARRATIVES

by

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ABSTRACT

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The historical and ecological relationships between the Tohono O'odham and the Sonoran desert landscape are expressed in the stories they tell. The Tohono O'odham have lived in the deserts of southwestern Arizona and northern Mexico for centuries, interacting with their environment and gaining intimate knowledge of desert botanical communities. Many of these interactions are dramatized in their traditional oral narratives. I have characterized those traditional oral narratives that illustrate and articulate Tohono O'odham interrelationships with Sonoran desert botanical communities as "plant emergence narratives." These stories embody and express the reciprocal relationship between the Tohono O'odham and the plants they cultivate or harvest from the wild. In examining these narratives, I discuss some of the many levels on which they operate, specifically the intersection of cultural worldview with scientific data, or what I term "cultivation lore."

This discussion focuses on an exploration of the stories of corn emergence to the Tohono O'odham, with comparative analysis of stories that dramatize wild plant emergence. The significance of these narratives to the Tohono O'odham and to others is discussed in the context of history, folklore, and ecology, specifically the current crisis in loss of biological diversity. By exploring the cultural value and ecological content of these plant emergence narratives, I suggest that we may discover solutions to the question of how we may live with awareness and conviction to both our human and ecological landscapes.

(141 pages)

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Jennifer L. Hughes

CONTENTS

CHAPTER 1

PREPARING GROUND: AN INTRODUCTION TO THE STUDY OF FOLKLORE AND ECOLOGY IN TOHONO O'ODHAM PLANT EMERGENCE NARRATIVES

"Where language touches the earth, there is the sacred" --N. Scott Momaday

There is an intangible hesitation in the dry southwestern desert before the rains come. And there are slow, almost soundless, movements of brown snakes sliding beneath low, brittle bushes, warm winds shaking the thin brown fingers of the ocotillo, and the smell of dirt rising up from footsteps. The absence of precipitation and the presence of space influence the complex and diverse ecosystem of the Sonoran desert in southwestern Arizona and northern Mexico. Aridity, the source of beauty and of mystery in this "long brown land," dominates the interactions between people and the environment (Austin 1988, 16). Pale, green trees, thorny cacti, creosote bushes, and mountains that rise abruptly from the desert floor unfold across the earth under changing skies of brilliant blue and dramatic, dark thunderclouds. Lizards, coyotes, and cactus wrens crawl, saunter, and fly through the arid desert landscape seeking cover, shade, and a good nesting place. The Tohono O'odham live here, too. Like the desert environment, their complex and diverse tradition of oral narratives is shaped by aridity and by the dynamic interactions among history, culture, and landscape. This study offers an exploration of Tohono O'odham traditional oral narratives that express and dramatize these interactions, especially the interrelationships between human behavior and cultural attitudes about plants. In this

chapter, I will explain the purposes of my study and discuss folklore as the foundation for my interpretation of these narratives.

The narratives are multi-layered constructs in which cultural beliefs and ecological information are related in ways that make sense to the Tohono O'odham. It is my hope that this discussion will open a conversation about the folkloric and literary dimensions of O'odham oral narratives and the cultural, historical, and ecological contexts that influence them. By asking questions about the botanical knowledge contained in their vernacular records, this discussion seeks to question and challenge familiar ways of thinking about relationships between plants and people. Close attention to these stories and the ideas they dramatize provides insight into the worldview of the Tohono O'odham, and from this understanding comes a recognition of their continuous interactions with the desert. To come to an understanding of another culture's worldview, this study assumes an interdisciplinary approach and acknowledges the dynamic nature of narratives, people, and landscapes. Awareness of this understanding is essential in the wake of our current environmental situation, where people are not engaged in reciprocal relationships with their environments. It is my belief that we stand to gain, at the very least, knowledge about cultivation resulting from years of stored experiences with the desert that may contribute to improved species diversity and ecological restoration, and at best, understanding of and appreciation for a distinct human community and the mindfulness and conviction with which they approach landscapes, both human and ecological.

According to historians Richard White and William Cronon, "North American Indian conceptions of nature and culture generally intersect in two ways. On the one

hand, human beings are part of nature by virtue of being biological beings living within a material world. On the other, natural beings such as plants and animals are also part of a human cultural world" (1988, 418). Tohono O'odham conceptions of nature and culture intersect, at least in part, in their stories of plant emergence. O'odham "plant emergence narratives" are "like a complex ceremony in miniature, encompassing aphorism, public announcements, speeches, prayers, songs, and even other narratives" (Tedlock 1983, 3). They embody cultural attitudes, values, and assumptions and dramatize their physical, cognitive, and moral responses to the human condition. These responses reveal how the Tohono O'odham see the world and communicate their vision with O'odham people and to other folk groups. Plant emergence narratives articulate knowledge of traditional agricultural practices, the existence of and dependence on native plant species (such as multiple varieties of corn), and rain-bringing ceremonies. In addition, these narratives dramatize the reciprocal relationship between the O'odham and their desert environment.

Archaeologist Julian Hayden collected the most complete English translation of O'odham narratives from two Pima (relatives of the Tohono O'odham) informants, Juan Smith and William Smith Allison in 1935 in Snaketown, Arizona.[1] I will focus on an examination of three versions of traditional oral narratives that articulate the emergence of corn to the Tohono O'odham. The narratives I examine and discuss are from Julian Hayden's manuscript, the Saxton and Saxton text "Where the People Got Corn," and "The Story of Corn and Tobacco," contained in J. William Lloyd's Aw-aw tam Indian Nights: Being Myths and Legends of the Pimas of Arizona (see Appendix D). Hayden's manuscript was recently published by anthropologist and Tohono O'odham scholar

Donald Bahr in The Hohokam Chronicles: The Short Swift Time of Gods on Earth (1994). Harold Bell Wright's Long Ago Told (HUH-KEW- AH-KAH): Legends and Lore of the Papago Indians (1929) and Frank Russell's 1908 report, "The Pima Indians," for the Bureau of American Ethnography provide supplementary versions of the plant emergence narratives. Collected stories from the Journal of American Folklore are also considered in this study.

My discussion has also been greatly influenced by the thoughtful and eloquent studies of Tohono O'odham history, literature, and ecology that have come before, especially the works of Tohono O'odham scholar Bernard Fontana, ethnobiologist Gary Nabhan, anthropologist Ruth Murry Underhill, and linguist and Tohono O'odham scholar Ofelia Zepeda. The engaging and comprehensive works of Underhill, including Singing for Power: The Song Magic of the Papago Indians of Southern Arizona, Papago Woman, and Papago Indians of Arizona and Their Relatives the Pima, among others, provide context and inspiration for this study. Nabhan's literary and botanical explorations of the human/plant relationship in the cultures of the Sonoran desert and beyond, including Gathering the Desert and Enduring Seeds: Native American Agriculture and Wild Plant Conservation, helped to create the landscape from which this study grows. Further thoughts on my discussion of nature and culture as expressed in O'odham narratives have been shaped by the works of environmental historians Alfred Crosby, William Cronon, and Richard White, biologist Edward O. Wilson, and historian Simon Schama.[2]

The second chapter discusses the Tohono O'odham in their historic environment, including cultural and agricultural subsistence. Examining their worldview from a

historical perspective may seem illogical; the traditional environment no longer exists for most O'odham. However, the idea is not to present the Tohono O'odham as a people without a continuing literature and history, but rather to provide the cultural and historical context necessary for a discussion of how these narratives have functioned and are functioning for the O'odham as expressions of human/plant relationships. In the third chapter, I offer a literary and ecological exploration of the plant emergence narratives. This discussion focuses on stories of how corn came to the Tohono O'odham. By way of comparison and exemplification, stories about the emergence of saguaros reinforce expressions of the human/ plant relationship found in the corn stories. In the final chapter, I attempt to bring the examination of the plant emergence narratives and botanical knowledge together with larger ideas about culture and nature, especially attempts to restore ecological communities, and suggest the pragmatic value of the cultural information about plants contained in the stories. I hope to avoid looking at the narratives as objects, or "symbols" of environmentalism although it is significant that the plant emergence narratives share characteristics with "environmentally-oriented works":

> (1) a non-human environment that exists not only as a framing device but as a presence that suggests that human history is implicated in natural history; (2) human interest is not understood to be the only legitimate interest; (3) human accountability to the environment is part of the text's ethical orientation; and, (4) some sense of environment as process rather than as a constant or as a given is at least implicit in the text. (Buell 1995, 7-8)

In examining these stories and the oral traditions they come from, this study asks what people, plants, and landscapes we have lost and are losing and what it is about them we may yet find.

The study of folklore provides an interdisciplinary method for examining the cultural and natural contexts expressed in narratives. Folklorist Alan Dundes suggests that oral narratives can be examined by considering three structural components: text, texture, and context (1966, 255-56). The text consists of a single version of a narrative. An analysis of surface features, such as repetition and key words and phrases, supplies the texture, or verbal form of a narrative and should include "any coloration given a traditional item or statement as it is being said" (Toelken and Scott 1981, 82). The third consideration, context, is the situation in which the narrative is performed, involving the audience, narrator, and environment. Context provides a mediating ground for text and texture and influences the way a narrative develops. The narrator's comments about the story he or she tells open up the "possibilities and limitations" of analysis (Toelken and Scott 1981, 79). An exploration of shared values, traditions, and customs within variations of Tohono O'odham stories reveals the significance of everyday experience and consistency in thought and action and shows how information and attitudes are shared.

For example, the interdependent relationship between cultivated corn and the Tohono O'odham traditionally required knowledge of planting rituals and cultivation practices, as well as seed-saving techniques, to ensure a good harvest and the genetic diversity of future crops. Stories about the emergence of corn to the O'odham people generally involve a personification of Corn, a marriage between Corn and an O'odham woman, the bestowing of cultivation lore by Corn to the people, and the birth of a child. These symbolic events dramatize what values are meaningful to the Tohono O'odham--a good harvest, a way of life that recognizes reciprocal relationships between plant and

human worlds, the rain-bringing and "singing up the corn" ceremonies, and the promise of future generations of corn and, subsequently of O'odham people. Cronon suggests that to

> try to escape value judgments that accompany storytelling is to miss the point of history [and literature] itself, for the stories we tell, like the questions we ask, are all finally about value.... What do people care most about in the world they inhabit? How do they use and assign meaning to the world? What sort of communities do people, plants, and animals create together?" (1992, 1376)

The Tohono O'odham are inextricably linked to the landscape that sustains them and their long history of interaction with the Sonoran desert environment provides the framework for how they organize and make sense of their natural world. Plant emergence narratives are literally a means of survival for the Tohono O'odham, not only culturally, but ecologically as well. In fact, culture and environment are so interconnected that it becomes difficult to distinguish whether one could persist without the other. In the plant emergence narratives, for example, the very "planting" of an O'odham child or grandmother begets the saguaro. Without the saguaro, there would be no wine ceremony to "pull down the clouds," and without the rain, no crops to sustain the people. The narratives logically communicate the cultural value of plants in terms of ritual and sustenance and, further, they articulate sets of scientific data in such a way as to make cultivation lore understandable and accessible. In this way, the narratives sensibly relate cultural and ecological life cycles. As Cronon suggests, " ...ideas of nature never exist outside a cultural context, and the meanings we assign to nature cannot help reflecting that context" (1995, 35).

The desert environment--including rainfall, wild and cultivated plants, seasonal homes, and calendar years--provides context for all its inhabitants. The Tohono O'odham

traditionally depended on cultivated corn and wild plants for subsistence. Desert conditions dictated only two short planting seasons per year, and even these were subject to the whims of monsoon rains. This precarious existence required awareness and knowledge of cultural beliefs associated with planting and harvesting. In many ways, O'odham stories are the method for translating this knowledge to younger generations. The subsistence referred to in this study involves not only biological nourishment, but sustenance for the cultural and spiritual development of the O'odham and their worldview. The corn emergence stories articulate these central concerns. The Tohono O'odham narrative, "The People Plant Corn," dramatizes the danger of ignoring these expressions:

> After that, a year passed. Those who were alert and industrious had already taken the good land. Coyote, however, had almost eaten up his seed. Being lazy and sleepy-headed, he had not yet looked for good land. Suddenly it rained. The people ran off in every direction and planted on their land. Then Coyote went running with the seed in his hand, to plant it somewhere.
>
> But there was always someone to say, "Ha! Uncle! Get away! I've already taken the land there."
>
> Coyote kept running again and never did find good land. He got tired and angry and said, "I'm going to plant here. If it wants to come up it'll come up. What will happen? I never planted anything before and am still alive. Maybe I'll live, even if my crop doesn't come up." As he said this he was planting along the banks of the arroyo.
>
> When the corn was first planted and sung to, Coyote kept sleeping, so he didn't learn a single corn song. So as he planted his seed, he said, "I'll just compose one song. It'll be just as beautiful as Corn's songs." He was wandering along the banks of the arroyo, planting and singing:
>
> Make mush in the morning!
> Make mush in the morning!
> Make mush in the morning!
> Hih, jiwia, ahhina!
> Grind the corn fine and make mush!
> Make mush in the morning!
> Hih, jiwia, ahhina!
> Hih, jiwia, ahhina!
>
> Corn is what Coyote planted, but it wasn't corn songs that he sang to his crops. So it was not corn that came up. What came up is what now comes up along the

> arroyo banks and is called "Coyote's tobacco" [Ban wiwga]. (Saxton and Saxton 1973, 41-44; Nabhan 1982, 83-84)

Coyote's actions dramatize what could happen if the ritual corn planting songs and cultivation practices are not learned or if they are taken lightly. The corn emergence narratives may not necessarily contain the proper words for the ritual rain-bringing, planting, and harvesting songs; however, the mere mention of such songs to O'odham listeners may call the words to mind. The Tohono O'odham believe that language is powerful, for it creates reality; indeed, "...in older traditions an object and its name were not separated. One equaled the other. To speak of corn, for instance, was to place the corn before a person's very eyes and ears" (Hogan 1995, 51). So, when Coyote sings his songs about "mush," he sings for the food that results from knowing the planting and harvesting rituals. He demonstrates concern for the final product--not the rituals that encompass corn planting.

While Coyote's actions represent inappropriate cultural behavior in "The People Plant Corn," he is the model of acceptable, sometimes heroic, behavior in other Tohono O'odham stories. In the story "Coyote Scatters Saguaro Seed," Turtle keeps the saguaro cactus for himself by throwing its seeds into the ocean (Saxton and Saxton 1973, 79-84; see Appendix D). When Coyote goes to investigate, he finds Turtle heading toward the ocean to dispose of a handful of seeds. Coyote deceives Turtle into opening his hand a little bit, "And just as Turtle was opening his hand, he [Coyote] hit it from below, and the seed was scattered wherever there are saguaro growing now" (Saxton and Saxton, 83). In The Autobiography of a Papago Woman, Chona remembers: "I knew all about Coyote

and the things he can do, because my father told us the stories about how the world began and how Coyote helped out creator, Elder Brother, to set things in order" (Underhill et al. 1979, 50). While the telling of narratives like these Coyote stories may be recurrent and constant in a community, the narratives are subject to modifications because they are constantly being told and retold by different narrators for different audiences. Individual tellings may vary slightly, but it can be assumed that it is the most essential information that is continually passed down through oral narratives, regardless of variation.

The Tohono O'odham may recognize "The People Plant Corn" as part of their origin story. This narrative should be viewed as an "incomplete episode in a progression" of stories because it is a portion of a larger context (Erdoes and Ortiz 1984, xiii). For the O'odham, "the very concept of emergence associated the origin of human life with the plant kingdom. The emergence stories, therefore, begin on this vegetable conception of life" (Bahr 1975, 319-20). The origin story chronicles the workings of Elder Brother as he creates the firmaments and the land and its human, plant, and animal inhabitants, including a "re-creation" of the Hohokam people and the subsequent emergence of the O'odham peoples after the Hohokam are sent away by Elder Brother. Cultivated plants, wild plants, rituals, and ideas of fertility and death originate in the words and songs of the story.

The sharing of this oral narrative tradition involves the realm of all possible interactions between the narrator(s) and the listener(s). While the time of year this lengthy, detailed story is told and the overall content do not change, what the narrator chooses to emphasize may depend on the composition of the audience and its responses,

the narrator's response to the audience, the environment in which the story is told, and the influence of contemporary cultural issues. These factors contribute to the ongoing process of communicating emotion and experience in folk narration. The continued existence of these folk narratives depends largely on the response of the audience which shapes and preserves them.

Because stories are shaped by those who listen to them and those who recite them, they must have structure to persist in unwritten form. The "weight of the familiar past continually exerts its subtle pressure on the bearer of the material" in two ways: adherence to a standard type of narrative (one that personifies corn); and awareness of and reaction to audience needs and expectations (the presence or absence of children) (Toelken 1969, 96). For example, because the number four is significant for Native Americans in the southwest, representing directions and seasonal cycles, it is possible that a story would be structured in four scenes, episodes, events, or parts, or contain four songs or characters. Content may provide concrete images (Coyote in "The People Plant Corn") for making something abstract (the relationship between humans and plants) into something understood among community members (planting instructions and ritual practices). Although this framework can probably be found in narratives of other southwestern Native peoples, comparisons on the content level should recognize culturally specific expressions of meaning in these stories.[3]

The complexities of narrative comparisons among Native American peoples are demonstrated by consideration of the thorough, yet disparate, European-American expansion and settlement in North America. Narratives that contain expressions of pre-

industrial agricultural (land-use) and hunting practices, the existence of and dependence on native American plant and animal species, and traditional Native American religions and rituals may have been affected, or even lost, as traditional agricultural methods were replaced by plows and cattle, indigenous plant and animal species disappeared, and religious beliefs and rituals were dismissed by settlers as "savage." Diseases decimated populations, land was settled, and new plant and animal species were introduced over many years and at different times. No matter where European Americans ventured forth, however, one thing remained constant: Their concept of the human relationship to the land differed drastically from the Native Americans they encountered. But as Native American traditional oral narratives show, Native groups may share a concept of reciprocity in human and ecological communities, but their stories express distinctions that are shaped by regional landscapes.

> Originally, no native North American society subscribed to the idea of biological determination of identity or behavior. Indeed, the most common identity question asked of strangers was not, "What nation do you belong to?" or "Of what race are you?" Instead, when confronting unknown people, they typically asked, "What language do you speak?" (Krupat 1992, 17)

The survival of oral narratives depends on the persistence of the Tohono O'odham language and the maintenance of the landscape from which they are born. When the act of writing translations of oral narratives occurs, in some ways, a sense of distance is created between people and the environment because the language no longer depends on the symbols in the landscape for its invention and in situ reminders. Interrelationships between stories, the culture that articulates them, and the audience who listens to them

begin to change as the narrative landscape changes. Once plants, for example, become extinct in a habitat, their inherent value as part of a larger, interrelated ecosystem is lost, just as aspects of performance and nuances of the O'odham language are lost in written translations of oral narratives. When ethnohistorian Michael Brunn collected oral history interviews with Tohono O'odham children, he concluded that

> the participants spoke at length about their beliefs in the maintenance of their cultures and of the need for language renewal among their generations and the younger ones. They said that since there was a close relationship between language and the traditions, the loss of the language would mean a loss of culture. They felt that there was an embedded sense of knowing and belief in the words that directly correlated with the traditions of their communities. (1994, 51)

Because the telling of a story engages the audience in its own creation and development by asking the listener to pay attention to language, members of the audience think by association, calling up related ideas and evaluating their significance. Leslie Marmon Silko suggests that "the continuity and accuracy of the oral narratives are reinforced by the landscape--and the Pueblo interpretation of the landscape is maintained" (1990, 890 [original emphasis]). Similarly, for Tohono O'odham, the corn plant becomes a tangible reminder of reciprocal responsibility between the human and plant worlds. O'odham ideas of cultural identity are reinforced by botanical identity in the natural world. When "a human community encourages its members to know the characters of select plants so intimately, it is also making its own cultural identity known" (Nabhan 1985a, 7).

Tohono O'odham cultural and ecological identities are created in the dynamic processes of narration. These narratives "grow, alter, survive, or disappear like the taxonomic categories set up by the biologist. They represent, in fact, a convenient method

of fixing and thereby describing an essentially fluid process, of understanding the interconnecting and changing web of relationships" (Foster 1969, 105). Many folklorists view the process of variation as the "very essence of their material, for in the linguistic, musical, and anatomical traditions the item is the performance, and the performance is nearly always a particular version of a prototype" (Toelken 1969, 95). In this way, the diversity found in multiple versions of narratives parallels the diversity found in successful biological species. Both contexts need to exist in familiar environments where their adaptations have rendered them sustainable. Expressions and dramatizations of cultural and ecological attitudes intersect among various narratives, and reveal what people care most about in the world they inhabit and what sort of communities they create with plants, animals, and landscapes (Cronon 1992, 1376).

Viewing stories as fixed or immutable, and, therefore, placing value of authenticity over one version or the other, is similar to cultivating monotypic species of plants. Cultural diversity and ecological diversity are affected by similar processes: Monocultures become susceptible to pests, weather, diseases, and land development, just as stories stand to lose their animation and cultural significance. When these losses occur, the plants and their indigenous landscapes, and the storytellers and their audiences, are no longer involved in reciprocal relationships.

Tohono O'odham plant emergence narratives dramatize the moment where language touches the earth and meaning springs forth, and in such moments and from such meanings, we must "try to understand not just the environment whose problems worry us

but also the 'we' who choose to understand and worry about those problems in ways that are quite peculiarly our own" (Cronon 1995, 458).

NOTES

[1] Taken from N. Scott Momaday, 1995 Convocation Lecture. Utah State University, Logan, Utah.

[2] Another complete version of the origin story was collected by Bernard Fontana in 1972. This recording of Tohono O'odham Frank Lopez, which is transcribed by Albert Alvarez, is currently being translated into English by Tohono O'odham linguist and scholar Ofelia Zepeda. A portion of the narrative appears in Tohono O'odham and English in The South Corner of Time (1983).

[3] These thoughts have also been greatly influenced by discussions in several of my classes, especially Dr. Lyon's "Regionality in Literature" course.

[4] To suggest the complexities and possibilities of examining at least one level of meaning in Native American narratives, I will briefly compare ideas of cultural and ecological identity in a New England Penobscot story, "Corn Mother," and the Tohono O'odham narrative discussed earlier, "The People Plant Corn." Both narratives contain a combination of cultural attitudes (the significance of corn to the people) and sets of ecological data (cultivation lore).

> In "Corn Mother,"
>
> .... The little children came to First Mother and said: "We are hungry. Feed us." But she had nothing to give them, and she wept. She told them: "Be patient. I will make some food. Then your little bellies will be full." But she kept weeping.
>
> Her husband asked: "How can I make you smile? How can I make you happy?
>
> "There is one thing that will stop my tears."
>
> "What is it?" asked the husband.
>
> "It is this: you must kill me."
>
> "I could never do that...."
>
> "Tomorrow at high noon you must do it. After you have killed me, let two of our sons take hold of my hair and drag my body over that empty patch of earth. Let them drag me back and forth, back and forth, over every part of the patch, until all my flesh has been torn from my body. Afterwards, take my bones, gather them up, and bury them in the middle of this clearing. Then leave that place...." So it was done.

When the husband and children return to the patch of earth after several months, they find corn growing. They follow First Mother's instructions, eating the corn and saving its seed. "And at the spot where they had burned First Mother's bones, there grew another plant, broad-leafed and fragrant.... And First Mother's husband called the first plant Skarmunal, corn, and the second plant utarmur-wayeh, tobacco" (Erdoes and Ortiz 1984, 12-13).

"The People Plant Corn" and "Corn Mother" articulate the cultural significance of corn as a source of sustenance. Even though corn is highly valued among both groups, the way this message is translated reveals nuances specific, both culturally and regionally, to the Tohono O'odham and to the Penobscot. For example, the Tohono O'odham story expresses the need to know the planting rituals by dramatizing how not to plant through Coyote's actions, while the Penobscot narrative embodies specific cultivation information about how to plant the corn through the actions of First Mother's children. The emergence of tobacco is also dramatized differently in the stories as the result of some manifestation of planting, or mis-planting, corn. The Tohono O'odham narrative embodies ideas of ritual song and planting procedures indispensable for cultivation in their arid environment. For the Penobscot, who depended more on hunting than the Tohono O'odham, "First Mother" could function as a vivid dramatization of the life cycles of plants and animals.

CHAPTER 2

PLANTING SEED: THE TOHONO O'ODHAM CULTURE IN ITS HISTORIC ENVIRONMENT

"What would a more historically and culturally minded way of understanding nature look like, which would take seriously not just the natural world but the human cultures that lend meaning and moral imperatives to the world?" --William Cronon

Jeoss created Elder Brother (also I'itoi, Si'ihe, First Born, Siuuhu) as the first person to come forth at the "beginning of all things" in the Tohono O'odham origin story told by Juan Smith and William Smith Allison (Hayden 1935, 1-10). Together, Jeoss, Elder Brother, and Earth Doctor create the dawn, humans, deer, jackrabbits, wind, rain, grass, the moon, night, Coyote, and the stars. A great flood brings waters surrounding the highest mountain peaks from which Elder Brother, Earth Doctor, and Coyote emerge as the only survivors. Humans are then re-created, along with birds, animals, sickness, and plants. Juan Dolores tells the story this way:

> Long ago, they say, when the earth was not yet finished, darkness lay upon the water and they rubbed each other. The sound they made was like the sound at the edges of a pond. There, on the water, in the darkness, in the noise, and in a very strong wind, a child was born. The child lay upon the water and did as a child does when it is being made to stop crying. (Like when its mother sings and tosses it up and down and walks back and forth with it.) The wind always blew and carried the child everywhere. Whatever made the child took care of him, fed him, and raised him. (Saxton and Saxton 1973, 1-3)

This child is Elder Brother, and according to Dolores, "In this way, First Born finished the earth. Then he made all animal life and plant life" (Saxton and Saxton, 3). The history of the Tohono O'odham, the "Desert People," begins, then, with the creation of people,

animals, plants, and landscapes, and is influenced by the figurative images of water throughout the narrative and the literal presence and absence of water in their desert environment. This chapter provides a general sketch of O'odham history, with a particular concentration on the evolution of their agricultural subsistence practices.

The Tohono O'odham (formerly known as Papago or "Bean People") have lived in the Sonoran desert for centuries. They are possible descendants of the Hohokam, or Huhugam O'odham, meaning "people who have vanished." The Hohokam people resided in the desert southwest for probably one thousand years, yet what became of them remains a mystery. Archaeological sites in Arizona at Snaketown and Casa Grande suggest that the Hohokam persisted for many years and had domesticated crops and sophisticated irrigation systems (Lewis 1994, 119). One theory behind the Hohokam decline cites the abandonment of agriculture due to the barren, salted fields created by extensive irrigation canal systems on the Gila and Salt Rivers (Worster 1985, 34). In another version of the origin story, collected by Underhill, the Tohono O'odham say that Elder Brother needed a force to expel the Hohokam and "for this purpose he went underground and brought up the Papagos" who with I'itoi's help "drove them [the Hohokam], some to the north and some to the south....I'itoi confirmed their efforts by singing the enemy into blindness and helplessness. So he laid the foundation for the Papago world" (1993, 14). When Smith and Allison complete their telling of the origin story, the O'odham emerge after the conquest of the Hohokam.

Among the Uto-Aztecan linguistic relatives of the Tohono O'odham are the Aikmel O'odham ("River People" or Pima) and the Hui 'ced O'odham ("Sand People" or

Sand Papago). The Aikmel O'odham historically lived closer to water resources than the Tohono O'odham and practiced irrigation agriculture, while the Hui 'ced O'odham led a nomadic existence in the southern Sonoran desert, relying on wild plants for subsistence.[1] While these O'odham are distinct in speech and location, they share similar landscapes, ceremonies, and traditional narratives. According to historian Winston Erickson, the O'odham "sense of belonging came from similar traditions and ways of life, language, and related legends, and especially...in surviving in a beautiful but not hospitable land" (Erickson 1994, 18). While the Underhill and Smith and Allison versions do not solve the archaeological mystery of the passing of the Hohokam, they speak metaphorically of the historical continuity of interactions between the O'odham and the desert landscape.

These interactions in the Sonoran desert landscape are influenced by the immense biologic and geologic diversity of the area. Slow-growing saguaros, velvet mesquite trees, pungent creosote bushes, and stick-like ocotillo define the desert terrain. This terrain is interrupted by jagged, brown mountains created by the "folding, faulting, and volcanic" activity of the earth (Olin 1994, 13-14). Animals abound in the Sonoran desert, from quirky kangaroo mice and pollen-dusted, long-nosed bats to majestic bighorn sheep and the few, elusive mountain lions. The plants and animals have developed unique adaptations to an area that is dominated by low and erratic precipitation, which averages less than ten inches a year. Sonoran desert temperatures range from above 100 degrees F in the summer to milder climates in the winters, with occasional snow in the higher elevations (Castetter and Bell 1980, 12-13). Rainy seasons suspend the arid climate twice yearly during winter rains and sometimes violent summer storms, or monsoons.

The Tohono O'odham traditionally lived a semi-nomadic lifestyle in communal groups in accordance with the cycles of these rains. They planted and cared for their fields during the time of the late summer monsoons and, during the other seasons, wandered the desert in search of wild animal and plant resources. Migratory life made preserving and storing food difficult at times, but this hardship increased the spirit of giving among the O'odham, and "They were constantly giving, as though from an inexhaustible supply" (Underhill 1939, 90). The location of their seasonal homes was determined by these subsistence practices. The homes usually occupied during winter were situated at permanent water sources called tinajas in the mountains or foothills, referred to as the "Wells." The homes of late summer and early fall, called the "Fields," were located in open desert country close to cultivated areas. A story of the Fields is told in Long Ago Told (HUH-KEW AH-KAH): Legends of the Papago Indians:

> And one of the wise old men who sat on the mountain side said it was too bad that the valley was so small. If they could only move the mountains back they would have room for many good fields. So the old men talked about it. And they decided to ask Great Spirit to help them. They climbed the side of the mountain peak, Bahvo-kee-vu-lick [Baboquivari], until they found the cave where Ee'-e-toy [Elder Brother] lives....When the four wise old men came down from the mountains they told the women to carry all the cactus fruit which they had gathered, down to the valley. Then they called all the Indians together. And they told the Indians they were going to hold a great feast....So the men sang and danced harder and harder. And the women passed the wine. And just before Sun came down at the end of the fourth day the mountains moved back so fast that the top of a peak fell off and rolled down and broke into big rocks. (Wright 1929, 135-140)

Tohono O'odham homes were made of plant materials, including cacti, trees, shrubs, grasses, and other plants (Fontana 1989, 48). And plant materials from the tall ha:san, red

clay, and greasewood were used to create a calendar stick on which these movements and other events were recorded.

A Tohono O'odham calendar record was kept on the smooth side of a saguaro rib, notched with knife marks, and painted with symbols in red clay or bluish soot made from embers of burnt greasewood. The calendar year begins when the rains come and planting begins in late July. In 1938, an O'odham informant interpreted the symbols for Underhill, describing events that occurred during ninety-three years of Tohono O'odham history:

> 1839-40--This was the year when "the world went wrong." There was fighting in Mexico and the calendar keeper was so impressed and frightened that he began the stick.
> 1848-49--A disease killed many of the children.
> 1849-50--A peaceful year.
> 1868-69--The Enemy [Apache] came to Calabasas in Sonora, where some of the People were working for the Mexicans.
> 1876-77--There had been no prayerstick festival for ten years because there had been no rain, and no crops.
> 1879-1880--The railroad came to the Foot of the Black Hill from the Red River.
> 1888-89--There was a horse race at Carrying Basket Mountain.
> 1898-99--Many children of the People were taken to Santa Fe to school.
> (Underhill 1938, 19-64)

These events reveal the daily life and cultural attitudes of the Tohono O'odham, and exclude the larger historical events that occurred during the time of the record, such as the Gadsden Purchase in 1854 and the 1864 establishment of the reservation at San Xavier (Underhill 1938, 3-66). While Underhill suggests that the value of this record is ethnological rather than historical, it seems the development of a culture's worldview and its perceptions of historical events are inextricably linked (1938, 14).

The "prayerstick festival," or rain ceremony, is called Wi:gita. The ten-day ceremony is traditionally held every four years around late July and early August, and involves dancing, singing, and the ritual enactment of planting, rain falling, and harvesting. The songs, dances, and symbols in this ceremony are representative of ideas expressed in Tohono O'odham narratives and planting rituals. They also express the concern that many Tohono O'odham ceremonies share--the coming of the planting rain. The saguaro harvest, called Nawait, is also a celebration of the coming clouds and rain, symbolized by the making, drinking, and vomiting up of tiswin, or cactus wine. Women collect the fruit of the saguaro using tall, slender saguaro ribs tied end-to-end to hook down the ripe fruit. They scoop the red pulp from inside the egg-shaped fruit and leave the husks facing upwards to collect the rain. In The Autobiography of a Papago Woman, a Tohono O'odham woman, Chona, remembers:

> At last the giant cactus grew ripe on all the hills. It made us laugh to see the fruit on top of all the stalks, so many, and the men would point to it and say: "See the liquor growing." We went to pick it, to the same place where we always camped, and every day my mother and all the women went out with baskets. They knocked the fruit down with cactus poles. It fell on the ground and all the red pulp came out. Then I picked it up, and dug it out of the shell with my fingers, and out it in my mother's basket. She told me always to throw down the skins with the red inside uppermost, because that would bring the rain. (Underhill et al. 1979, 40)

While the juice from the pulp ferments, the ceremony begins around a fire with songs of rain. After two days, the wine is ready. The Tohono O'odham give poetic and repetitive "Mockingbird speeches," and sing songs to "pull down the clouds" and "cover the wine." After rains soak the dry earth, the desert "riots with purple vetch and yellow rabbit brush, with the huge moons of white poppies and the flamepoint of pink starflowers.

Now the planting can begin" (Underhill et al. 1979, 21-47; 43). The corn grows in the night as O'odham farmers sing traditional corn songs:

> Evening is falling.
> Pleasantly sounding
> Will reverberate
> Our songs.
> ---
> The corn comes up;
> It comes up green;
> Here upon our fields
> White tassels unfold.
>
> The corn comes up;
> It comes up green;
> Here upon our fields
> Green leaves blow in the breeze.
> ---
> Blue Evening falls,
> Blue Evening falls;
> Near by, in every direction,
> It sets the corn tassels trembling.
> ---
> The wind smoothes well the ground.
> Yonder the wind runs
> Upon our fields.
> The corn leaves tremble.
> (Underhill et al. 1979, 44-45)

With this planting, or "singing up the corn," the Tohono O'odham agricultural practices, gathering of wild plants, traditional oral narratives, and rituals come together in a dramatic and beautiful expression of the relationship between people, plants, and landscape. According to historian Donald Worster, O'odham agriculture "demonstrated an intimate knowledge of the desert ecosystem, stream hydraulics, and agronomy. But theirs was not a science devoted to the technical conquest of nature; rather, it aimed more modestly at achieving a secure coexistence and a thrifty subsistence" (1985, 34).

Tohono O'odham subsistence traditionally depended on both domesticated crops and wild plants. Pumpkins, squash, tepary beans, and as many as seven different varieties of maize were cultivated on land that belonged to the tribe, but was held by individual families. Farming plots were "almost without exception located at the mouths of washes" (Castetter and Bell 1980, 125). Although the rainfall these crop plants depended on could be unpredictable in terms of duration and quantity, the O'odham farmers were active land and water managers who successfully cultivated these farming plots by practicing "flood-water," or Akchin, farming and mound planting. After the first rains of late summer, seeds were planted at the mouth of the washes, or arroyos. This system allowed the desert farmers to take advantage of natural mountain runoff and the fertility of flash-flood detritus. In order to improve the fertility of the ground and the success of crops, the O'odham farmer burned vegetative matter, leveled fields, cleared plots, and practiced water diversion techniques, such as the building of ditches, catch basins (charcos), small earthen dam impoundments (represas), and detritus-catching branchworks (Castetter and Bell 1980, 40-44; 125-27; 169). Certain wild plants were not weeded out of Tohono O'odham fields because they were recognized as having edible, medicinal, or handiwork potential. These wild plants, or "in-field herbs," growing in cultivated spaces were not "owned" by any individual person and neither were wild plants in uncultivated spaces, although families had customary gathering grounds (Lewis 1994, 127).

The O'odham utilized many wild plants for food, basketry and housing materials, medicines, and rituals. Women were responsible for gathering the wild food plants. In addition to the fruit and seeds of the saguaro (Cereus gigantia), the joints, buds, and fruits

of the cholla (Opuntia echinocarpa and O. fulgida) and prickly pear (Opuntia polyacantha) were traditionally gathered as sources of food. Like many wild plants, mesquite (Prosopis chilensis) is used for multiple reasons besides nourishment. Mesquite beans were ground in pechita holes and used as meal, while mesquite gum was sometimes used as a stabilizing component of hair dyes (Nabhan 1985a, 61-74; Curtain 1949, 95). Devil's Claw (Proboacidea) seeds are sometimes cooked and sometimes eaten raw, and its curled, claw-like appendage provides fibrous basketry material (Nabhan 1985a, 138; 137-149). Small greens collected in the spring and summer, including amaranths (Amaranthus palmeri), lambsquarter (A. chual), bursage (Franseria ambrosioides), and saltbrush (Atriplex wrightii), supplemented their diet. Women and men gathered such wild plants as mesquite and creosote leaves, canaigre root, cereus, and mistletoe for medicinal purposes and rituals, but only older men tended and gathered ritual tobacco (Castetter and Bell 1980, 59-64; Nabhan 1985a, 93-104; Lewis 1994, 123-128). Chona explains her relationship with wild plants this way:

> All the year round we were watching where the wild things grew so we could pick them. Elder Brother planted those things for us. He told us where they are and how to cook them. You would not know if it had not been Given. You would not know you could eat cactus stems and shake the seeds out of the weeds. Elder Brother did not tell the whites that. To them he gave peaches and grapes and wheat, but to us he gave the wild seeds and the cactus. Those are the good foods. (Underhill et al. 1979, 39)

While several Spanish explorers entered the lands of the O'odham during the 1500s, and identified some edible wild plant species and O'odham uses for them, "accounts of early Spanish explorers in the American Southwest shed almost no light on Indian medical practice," including medicinal plants (Vogel 1970, 80). Although Jesuit

priest Father Eusebio Kino, who entered O'odham lands in the late 1600s, identified "much bezoar, and the effacious contrayerba, and in many parts the important medicinal fruit called the jojoba," he failed to acknowledge the co-evolution of O'odham belief systems and landscape, and he would not be the first missionary in O'odham lands to disregard the interrelationships between the O'odham and the Sonoran flora (quoted in Vogel 1970, 81).

In the 1500s, Alvaro Nunez Cabeza de Vaca briefly ventured into O'odham lands with minimal impact. In 1539, Franciscan priests Fray Marcos de Niza and Estevan the Black headed northward into the Sonoran desert in search of the fabled Seven Cities of Cibola. And the same region was explored by Francisco Vaquez de Coronado in the 1540s. But the O'odham felt the impact of the European invasion long before they experienced direct contact with Spanish and missionaries. Historian Alfred Crosby suggests that one-directional confrontation with Old World germs, seeds, and animals transformed entire ecosystems in the Colombian age of exploration and exchange (1994, 185). In fact, by 1524, infectious European diseases traveled along trade routes from central Mexico into the vicinity of the Sonoran desert (Lewis 1994, 132). Kino had "created mission stations to spread Christianity, but perhaps more importantly he spread Old World seed crops, livestock, and infectious diseases. By 1710, Kino had introduced wheat, barley, chick peas, lentils, kidney beans, cabbage, onions, lettuce, garlic, anise, grapes, and other Old World cultigens" (Lewis 1994, 134). Ethnobiologists Edward Castetter and Willis Bell suggest that after Kino's death in 1711, "the Spanish influence among the O'odham waned," and they "remained relatively isolated, and their material

culture and religious ceremonies remained with almost no changes" (1980, 10). However, it is difficult to imagine such infusions as completely innocuous. In fact, as the O'odham

> became missionized through the church's reduccion program, at least some of them accepted the negative connotations associated with "wildness" and "rawness" that European colonists carried into the yonlands. (Nabhan 1985a, 64)

The perceived inhospitability of the O'odham environment may have lessened immediate cultural impact, but Kino's missionary explorations "profoundly influenced the whole early period of contact" between the Spanish and the O'odham and laid the foundation for permanent European settlement in the Sonoran desert (Spicer 1992, 120).

Events during the 1800s defined a country, a border, a reservation, and pieces of allotted land, but "a line through space could never look more arbitrary than it did to Indian people whose ancestors [had] moved unhindered in the region long before the line was even imagined" (Limerick 1987, 235). Although Spanish missionary work and animosity between the Apache and the O'odham continued, Mexican independence in 1821 had little influence on the people of the southwestern borderlands until the 1846 altercations between Mexicans and Americans triggered the Mexican-American War. The Treaty of Guadalupe Hildago ended the war in 1848 and the United States claimed the northern half of Mexico as its own. The political borderline created five years later as a result of the Gadsden Purchase divided O'odham lands into unnatural bioregions. According to historian Deena Gonzales, this apportionment "affected everyone: Native, Spanish, mestizo, and mulatto; men, women, and children; old and young" (quoted in Limerick 1987, 236). Reservations at San Xavier (1874) and Gila Bend (1884) were

established soon afterward, but possibly the most dramatic changes resulted from the 1887 Dawes General Allotment Act, which

> left the greater part of Papago territory between the Santa Cruz River and the Gila Bend open to settlement by non-Indians. The Papagoes were thus in a situation unique among Indians in Arizona and New Mexico. Elsewhere, relatively large portions of territory ranged over by the Indians were set aside as reservations exclusively for Indian use. The Papagoes, lacking any treaty with the United States, since they had fought on the side of Anglo-Americans, were given no formal protection against settler encroachment, except for the relatively minute areas at San Xavier and Gila Bend. (Spicer 1992, 136).

Every Native American adult was given 160 acres of grazing land or 80 acres of agricultural land and the rest was opened up for European American settlement. This land acquisition and development policy allowed the nation's increasing "commitment to the agrarian myth" to promote "new" crops, well water, ideas of individual land ownership, and cattle in the southwestern desert (Lewis 1994, 17). During this settlement period, European-American thought processes were shaped by ideas of civilization and savagery. Historian Patricia Nelson Limerick suggests that by "interpreting Indian/ white relations in these terms, Euro-Americans seldom glimpsed the complexity and integrity of Indian cultures.... All the cultural understanding in the world would not have changed the crucial fact that Indians possessed the land and that Euro-Americans wanted it" (1987, 190).

The O'odham lands, in fact, the "very heart of Papago territory--at Comobabi and Quijotoa," were opened to mining in the late 1800s (Spicer 1992, 137). The introduction of cattle interrupted subsistence patterns and the availability and quality of water resources, which in turn caused tensions between European-American cattle ranchers and the Tohono O'odham. For example, severe overgrazing of cattle caused "mesquite and

nonnutritious vegetation to replace grasses and led to the death of many cattle and horses from lack of water and browse" (Parman 1992, 29). Some O'odham worked as cowboys and tried to raise cattle themselves. Suddenly, the O'odham found themselves connected to the country's economic and political systems because of their growing dependence on cattle, mines, and agriculture (Spicer 1992, 138). The Indian Rights Association (IRA) was created in the late 1800s, and later, the Good Government League (1911) and the League of Papago Chiefs (1925) were established to deal with such issues. Many Tohono O'odham sought work off the reservation, in Tucson or elsewhere, and by the late 1920s, "at least 30 percent of O'odham earned their living from off-reservation work" (Parman 1992, 25).

The early 1900s saw the development of government aid programs, such as the "Indian Division" of the Civilian Conservation Corps, and the subsequent transition from a stable, communal lifestyle to one dependent on government programs that was a century long in the making. The Tohono O'odham worldview, including their narrative history and relationships to the land, was significantly challenged. For example, the establishment of numerous wells, where the source of water came from beneath the earth, on reservation lands conflicted with the concern expressed in narratives for "what might issue from the ground--evil winds or a flood" (Spicer 1992, 140). During this time, anthropologists, archaeologists, and linguists started collecting traditional oral narratives, songs, social customs, and rituals.

The 1934 Wheeler-Howard Act ironically allowed the Tohono O'odham to practice their own ceremonies. The act also ended the policy of allotment and created

tribal governments. Bureau of Indian Affairs Commissioner John Collier divided the reservation lands by grazing districts, creating eleven political districts, nine on the main reservation and one each for Gila Bend and San Xavier, and helped establish the tribal constitution and by-laws. He relied on the "agrarian myth" for "upgrading Indians' standard of living and achieving their self-support" because many O'odham returned to the reservation when work became unavailable, and "the Depression allowed no other alternatives" (Parman 1992, 26).

The mid-1900s initiated another period of transition for the Tohono O'odham as growth of off-reservation wage work, especially in cotton fields, increasing attendance by O'odham children at off-reservation schools, and significant declines in agriculture occurred. In 1955, they were given rights to the mineral claims on reservations lands and many began leasing out land for mining activity. According to historian David Lewis, the decline in agricultural subsistence among the O'odham resulted from the availability of off-reservation work, the relatively small size of farming plots and lack of adequate water supply on the reservation, and the changing economic market (1994, 165).

In the later 1900s, the Tohono O'odham have tried to reclaim their water rights and maintain traditional agricultural practices, including the unfortunately short-lived 1971 San Xavier Cooperative Farm Association and a 1975 tribal lawsuit against the City of Tucson. While as few as one hundred acres are under Akchin cultivation on Tohono O'odham reservation lands, a conservation organization called Native Seeds/ SEARCH has been established as a storehouse for traditional seeds of the Tohono O'odham and other indigenous peoples of the southwest and as a reservoir of cultural and agricultural

information. Today, there are between eighteen to twenty thousand O'odham living mostly on three reservations in Arizona: Wa:k (San Xavier); the main reservation at Sells, which is the nation's second largest after the Navajo Reservation; and the smaller reservation near Gila Bend, and in nearby cities and towns like Tucson, Phoenix, Casa Grande, and Ajo (Zepeda 1995, 85). A twenty-two-member tribal council meets at least once a month at the tribal headquarters in Sells to pass ordinances and resolutions and to pass judgment on proposed contracts between the Tohono O'odham and potential business partners, including the selling of water and mineral rights. The O'odham people struggle with health issues, such as alcoholism, obesity, and diabetes, resulting from significant alterations in diet as their subsistence lifestyles changed.

As the twentieth century nears its end, the traditional agricultural relationship between the Tohono O'odham and their landscape has changed, although the long-cultivated awareness of O'odham identity and attachment to the arid environment remains fertile.

NOTES

[1] Although there is little written on the Hia-ced O'odham, two oral history collections are available at the Western Archeological and Conservation Center, National Park Service office in Tucson. In 1979 and 1980, Ms. Fillman Bell conducted oral history interviews with the Hia-ced O'odham in a collection called "The Quitobaquito Cemetery and Its History." "The Sand Papago Oral History Project," collected by Ofelia Zepeda in 1983, continues the oral history project and contains interviews with elderly Hia-ced O'odham. An interview with Mrs. Beatrice Melvin is of particular interest to this study because it contains information on significant plants recognized by the Hia-ced O'odham.

CHAPTER 3

CULTIVATION: TOHONO O'ODHAM PLANT EMERGENCE NARRATIVES

"Listen. The ears of the corn are singing. They are telling their stories and singing their songs. We knew that would be true." --Linda Hogan

This chapter asks the reader to "listen" to the words of Tohono O'odham plant emergence narratives. An exploration of the language, images, songs, and rituals embodied in these narratives reveals the historical, cultural, and ecological worldview of the Tohono O'odham. These stories function as expressions and dramatizations of the reciprocal relationship between botanical and human worlds in the Sonoran desert in two vegetal realms--those that deal with cultivated plants, and those that consider the emergence of wild plants.[1]

In the early 1930s, anthropologist Ruth Underhill spent time among the Tohono O'odham doing ethnological fieldwork for Columbia University and, later, for the Bureau of Indian Affairs. Underhill, with a rare sensitivity for others and a gift for writing, made many significant contributions to the technical and literary works on the Tohono O'odham. Of her thorough research and numerous publications, it is Underhill's moving and intensely personal account of the life of a 90-year-old Tohono O'odham woman, Chona, that captures the essence of traditional Tohono O'odham existence. In The Autobiography of a Papago Woman, Chona remembers how the telling of stories begins:

> My father would lie quietly upon his mat with my mother beside him and the baby between them. At last he would start slowly to tell us about how the world began. This is a story that can be told only in the winter when there are no snakes about, for if the snakes heard, they would crawl in and bite you. But in winter when

> snakes are asleep, we tell these things. Our story about the world is full of songs, and when the neighbors heard my father singing they would open our door and step in over the high threshold. Family by family they came, and we made a big fire and kept the door shut against the cold night. When my father finished a sentence we would all say the last word after him. If anyone went to sleep he would stop. He would not speak anymore. But we did not go to sleep. (Underhill 1985, 50)

The telling of a story, like the singing of songs, is a ritual for the Tohono O'odham where the "describing of a desired event in the magic of beautiful speech [is] to them the means by which to make that event take place" (Underhill 1993, 6). It is this "beautiful speech" that captures the images of plants growing, women cooking cactus buds, rains falling, and men planting corn in the traditional Tohono O'odham oral narratives I term "plant emergence stories." Many of these stories belong within the O'odham origin cycle that Chona's father told, slowly and deliberately.

The Cultivated Plant Emergence Stories--Corn

In 1935, archeologist Julian Hayden collected a version of the O'odham origin story in hopes that its contents would shed some light on the disappearance of the people he studied, the Hohokam. The stories were told by two Aikmel O'odham informants, Juan Smith and William Smith Allison in Snaketown, Arizona, a village near the Gila River Reservation. The origin story suggests that the Tohono O'odham are relatives of the Hohokam and also provides one of only two continuous narrations by a single informant of the O'odham origin story in English translation.[2] Within this larger narrative context, the intriguing plant emergence stories take place. Hayden's original manuscript translation was recently published with commentary by anthropologist Donald Bahr in The Hohokam

Chronicles: The Short Swift Time of Gods on Earth (1994).[3]

The plant emergence narrative that illustrates the origin of corn and tobacco in the Smith and Allison origin cycle begins when Siuuhu [Elder Brother] rubs his breast and produces corn seeds (Hayden 1935, 10). Siuuhu sings songs about corn, pumpkins, white beans, and speckled beans, and demonstrates both how and when to plant these crops. "Corn man" and "Tobacco man" evolve from the seeds. During a game of "gins," Corn man and Tobacco man cheat and insult each other. As a result, Tobacco leaves the village, singing songs as he heads toward the west. Corn travels eastward, singing, and taking with him all the corn, leaving hungry people behind. After some time, a man goes to try and bring Tobacco back, but Tobacco does not want to come back. Tobacco gives the man some seeds and tells him to plant them in a secret place. The man returns to the village and plants the tobacco seeds in secret. Because he follows Tobacco's instructions, good tobacco soon comes up.

While Corn is in the east, he hears of a young woman collecting cactus fruit and is attracted to her. He travels toward her, singing. Corn ends up at the young woman's house and he asks her to pick something itchy out of his head. The woman pulls out a worm and puts it in her mouth and chews it up. Corn sticks one of his arrows in the cactus that the woman is cooking. When it is finished, corn and pumpkin are inside the cooking pot, not cactus. The young woman sings a song and goes to her parents with the pumpkin and corn four times. Corn tells this young woman that the villagers should make a special house for him and turn their pots, or ollas, right-side-up. So on the fourth day, Corn sings two songs and heads West. When he gets there, it "rained corn and it rained

pumpkins."

The worm turns into a baby and this upsets Siuuhu. Siuuhu causes a young girl to drop the baby, resulting in the baby's death. According to Smith and Allison, "this was the first time the people saw death" (Hayden 1935, 15). The baby goes to live at the "mountain that is tossed back and forth by the wind." Siuuhu tells the people that sometimes their crops will prosper, and sometimes fail, and that they must work very hard to have a successful crop. Siuuhu makes the bitter pumpkin as a symbol of the baby's death. He also gives the people watermelons and muskmelons. This story ends as Siuuhu makes four "commandments" about marriage.

While ideas about marriage also appear in the narrative "Where People Got Corn," no formal commandments are directly expressed. This narrative is in Saxton and Saxton's anthology of O'odham stories Oothham Hoho'ok A'agitha: Legends and Lore of the Papago and Pima Indians (Saxton and Saxton 1973, 27-44). Both the English and O'odham versions are divided into five sections. In the first section, an old man discusses "what makes a woman desirable and what a real man is like" with his daughter (Saxton and Saxton 1973, 27). In the meantime, Corn hears the daughter is looking for a husband and journeys from the East to the daughter's village to marry her. Corn arrives at the village and approaches an old woman and the daughter who are collecting cactus plants. The old woman instructs Corn to go and talk with the old men, but Corn ignores her suggestion.

The old woman and the daughter are cooking cactus buds "in the cooking hole in the ground" (Saxton and Saxton 1973, 32). When the old woman adds four basketfuls of

cactus buds to the cooking hole, Corn supplies four whiskers. Without consulting the old men, Corn goes to the home of the two women. Later, when Corn meets the old men, he talks about himself and his home, but fails to take the opportunity to ask directly for the daughter's hand in marriage and request proper sleeping quarters for the night. Corn also postpones the elders' questions by telling them that he will finish talking when he is rested, and promptly goes to sleep. The next day, Corn talks to the people about planting and cultivating corn in a four-day, "singing up the corn" ritual. Corn says he will take the old man's daughter to a place where "the land is good and there is plenty to eat so [she] will not get hungry," but the old man scolds Corn for his behavior and Corn returns to his home alone (Saxton and Saxton 1973, 40). This story ends with "The People Plant Corn," a narrative that involves the emergence of Ban wiwga, Coyote's tobacco, from the mis-planting of corn by Coyote.

In 1911, J. William Lloyd published Aw-aw-tum Indian Nights: Being Myths and Legends of the Pimas of Arizona. As in the Hayden manuscript, this edition contains a version of the corn and tobacco emergence story, but unlike the Saxton and Saxton version, Corn does marry in Lloyd's "The Story of Corn and Tobacco" (Lloyd 1911, 217-30). Tobacco is a woman in this version, and she asks her father to bury her because she cannot find anyone to marry. From the place where she is buried, the tobacco plant comes forth. The woman (Tobacco) comes back to life and meets up with Corn. As in the Hayden translation, the two play a game and insults are exchanged. Tobacco woman sinks into the ground and goes westward to a high mountain while Corn remains in the village. When planting time comes, the rains do not come, and Corn is blamed for driving

away Tobacco and consequently, rain. Corn takes Pumpkin and goes East.

Gee-hee-sop, a powerful doctor, takes the Doctor's Stone of Light, the Doctor's Square Stone, and some soft feathers and goes to ask Tobacco to return. Tobacco refuses to return but gives this man four balls of tobacco seed. Tobacco tells the man that if he smokes the plant, the rain will come. So when the tobacco is ripe, the people of the village smoke it, but they forget to perform the appropriate rituals. Tobacco's father reminds the people to uphold the rituals and the people of the village have tobacco for "years to come" as a result.

Meanwhile, Corn and Pumpkin live for many years in the East. When they journey back to the village, Corn sees a woman and her younger brother gathering cactus plants. While the cactus plants are cooking, Corn shoots an arrow into the sky. The arrow falls down into the cooking cactus. Corn then tells the woman to check the cooking pot, and when she does, corn and pumpkin are cooking there together. The younger brother takes some corn to the village and asks if the people of the village want Corn to return. So, they tell Corn to come back to the village. And corn tells them to prepare a kee (house) for his return and to turn their ollas upside down. Corn and pumpkin return to the village and "it rains corn and pumpkin all night." The people gather up all the corn. Corn makes an elaborate speech:

> And in the west there was a Bluebird, and when I asked him for power he flew up on his house and breathed four times, then flew toward the east, and he and Biveschool met at the middle of the earth.
>
> And Biveschool asked the Bluebird to do some great thing to show his power, and the Bluebird took the blue grains of corn from his breast and then planted them, and they grew into beautiful tall corn, so tall that its tops reached the sky and its leaves bowed over and scratched the ground in the wind.

> And Biveschool took white seeds from his breast and planted them, and they came up and were beautiful to be seen and came to bear fruit that lay one after another on the vine--these were pumpkins. (Lloyd 1911, 227)

Tobacco and Corn are married and have a baby, a "little crooked-necked pumpkin." The children of the village play with the baby "like it is a doll" and it dies as a result. The baby sinks down into the earth and later emerges as the saguaro cactus. When birds try to find where the baby goes, they find the saguaro cactus and demonstrate to the people of the village how to gather fruit from the cactus and make wine. As this version ends, Badger steals the seeds of the saguaro, but Tohahvs [Coyote] tricks him into opening his hand, "knocking the seeds all around."

Other, shorter references to Tohono O'odham corn emergence stories are found in the works of Harold Bell Wright and L.S.M. Curtain, and references to corn stories appear throughout the works of Underhill. Novelist Harold Bell Wright includes this short version of how corn came to the O'odham in his 1929 collection of O'odham stories Long Ago Told (Huk-kew Ah-kah):

> Then Ee'-e-toy [Elder Brother] gave the Indians their food: hoon, which is corn; pee-lee-kahn, the wheat; pah-fe, beans; and hah-lee, the pumpkin. And he showed them where each should be planted--certain fields for certain things. But Great Spirit did not give his Desert People too much of any one kind of food. And sometimes he stops the water and prevents the rain. This is because Big Brother knows it is best that people work for what they eat and not have things too easy. (Wright 1929, 29)

L.S.M. Curtain's early ethnobotony collection, By the Prophet of the Earth, contains two accounts of the story of corn and tobacco (1949). Corn and Tobacco quarrel in both versions, and in one, "the Corn went East, where they say it now grows best, and the

Tobacco went West. The Pima grabbed some of each, so now they have a little of both" (Curtain 1949, 133-34).

The complex and varied versions of the stories about how corn came to the desert people are literal and figurative expressions of appropriate social and ritual behavior among the Tohono O'odham. A third layer of meaning involves the communication of cultivation lore surrounding a traditional agricultural crop, in this case, corn. In retelling this story, which contains direct references to the ritual harvesting songs, an immediate, vicarious connection to the experiences it dramatizes results, empowering both the content of the narrative and the listener participants.

The stories about the appearance of corn to the people all begin with the dissemination of knowledge to the people, or to a "daughter" figure by powerful male figures. Siuuhu [Elder Brother] begins the corn story in the Hayden text by producing seeds from his chest. In the Tohono O'odham origin story, Elder Brother is the first O'odham to emerge from the meeting of the sky and the earth. Messages about cultural behavior and agricultural practices are often revealed through this character's words and actions. In the Saxton and Saxton[4] and Lloyd versions, there is an elder present at the beginning of the narrative. Traditionally, the village elders were responsible for making critical decisions, and the eldest male, the "grandfather" of the family, had the last word in all decisions (Underhill 1939, 195; Chesky 1943, 8). Although the Tohono O'odham language version in the Saxton text lacks a formally recognized "tag line," common in oral narratives, such as sh hab wa chu'i na'ana (they say it happened long ago), the use of these characters in the introduction may suggest the beginning of a familiar story to its Tohono

O'odham listeners and signify the cultural value placed on elders as repositories of cultural and botanical lore. The elders also symbolize the accumulation of knowledge that parallels the continual gathering of cultivated and wild plants over their long history in the desert.

In all versions, the corn plant is personified as a male entity and named "Corn" or "Corn man." In "Where the People Got Corn," Corn is aware of his own merits, frequently commenting on his good looks and charming character. Corn asks himself,

> "How do I know she will like me, I would be hurt if she didn't." Then he would look himself over again and think, "Who can be as handsome as I am? Who can know as much as I do?" (Saxton and Saxton 1973, 30)

The Hayden and Lloyd versions express the value of (C) corn by way of comparison to the value of (T) tobacco:

> She [Tobacco] told Corn to go away, saying: "Nobody cares for you, now, but they care a great deal for me, and the doctors use me to make rain, and when they have moistened the ground is the only time you can come out."
>
> And the Corn said: "You don't know how much the people like me; the old as well as the young eat me, and I don't think there is a person who does not like me." (Lloyd 1911, 217)

What is also dramatized here is the Tohono O'odham dependence on both wild and cultivated plants for subsistence, and the recognition of the plant itself. Corn describes himself as "tall, slender, and bearded," providing listeners with a physical description of a corn stalk complete with tasseled ears (Saxton and Saxton 1973, 28). He also appears "decorated and when his clothes kind of peeled off in front of his chest, it appeared like he had kernels of corn on himself" (Hayden 1935, 14). In this personification, it is not so important that Corn resembles humans--he travels, talks, marries--but, rather that this

blending of human/ plant images suggests that humans are active participants in the plant community.

In the Hayden narrative, Corn refers to himself as "flat-headed," a type of accidental corn with twin ears and flattened sides. According to Castetter and Underhill, "ceremonial corn meal was made only from 'flat-headed corn'" (1935, 35). These descriptions suggest the blending of human and plant images and reinforce the sacred nature of the corn plant in terms of subsistence and ritual to the Tohono O'odham. Presumably, when Tohono O'odham listeners hear that this corn is "flat-headed," there is a recognition of the corn's power. This relationship is wholly opposite of the way "defective" vegetables are often seen as aesthetically unpleasant and, as a result, economically unprofitable.[5] For the O'odham, however, the description of corn as "flat-headed" provides an explanation of this random occurrence in cultivated fields on one level and symbolizes the potential of plants to mediate the realm of human and ecological interactions. "Flat-headed" corn is sometimes referred to as having "twin ears." On still another level, this potent reference may dramatize the ritual significance of twin children in cultivated fields:

> A magical practice common to Pima and Papago was performed for the purpose of increasing the productivity of crops, particularly pumpkins, watermelons and muskmelons. When these plants began to flower their owner sought a set of female twins whom he took into the fields. Each twin gathered tips of four pumpkins or melon vines, and walked through the patch chewing them and blowing her breath over the plants. (Castetter and Bell 1980, 230)

The symbolic use of corn and corn pollen figures prominently in many Tohono O'odham ceremonies and rituals. During traditional salt pilgrimages, for example, the

"men must take back with them those white kernels which the 'outspread water' deposits on its shores and which resemble corn. In all the rituals, in fact, the salt is called 'corn'" (Underhill 1993, 111). The Wi:gita ceremony is a celebration that generally occurs every four years. During this festival of dancing and singing, the Tohono O'odham call on the rains, give thanks for past harvests, express desire for successful new harvests, and partake in symbolic planting and harvesting enactments. In the Wi:gita ceremony, "five groups of clown dancers tend mock fields.... They are small plots of ground which the clowns visit four times during the day and pretend to cultivate, going through all the steps from clearing the land to harvesting the crops" (Chesky 1943, 85). These actions, like the language of the narrative itself, create an ecological reality for the Tohono O'odham.

Corn pollen figures prominently throughout Wi:gita as it is placed on the chest of each family member and sprinkled on four children who represent the children who were sacrificed at the "Children's Shrine." These four children symbolize two boys and two girls who were given to the earth to turn back potential floodwaters and winds that sprang from a badger's hole in a wash, for the "people agreed that as their last chance, they would give up what meant the most to them. Four children... were dressed up, and began dancing around the hole. As they circled it, they slowly sank into the earth, and the gushing stopped" (Nabhan 1982, 63). The image of children sinking into the earth is recurrent in the plant emergence narratives.

Several cultural attitudes are embodied in these images: the importance of children to the Tohono O'odham; the cycle of continuous interactions, both historical and ecological, in their desert community; the willingness to sacrifice sacred beings, both

human and botanical, in order to survive in the arid landscape; the literal necessity for nourishment of the land, and subsequently, of the O'odham; and a recognition of the place that potentially begins and ends all life--the arroyos that carry water like lifeblood, where the children of the shrine sink into the ground like water or nutrient-rich detritus. Something, some future existence or some plant that ensures subsistence always comes from the burial of children. Even the presence of children in cultivated fields contributed to the success of the harvest:

> When corn began to come up, birds, especially blackbirds and doves, ate the young seedlings, so boys and girls were sent into the fields to drive them away, usually in the morning and in the evening.... Children protected plants particularly when they were coming up and again when the crop was ripening. (Castetter and Bell 1980, 177)

In many ways, children come to express the interdependent life cycles of human and botanical communities in the plant emergence narratives.

The plants themselves are seen as relatives by the Tohono O'odham and the people in the story refer to the ears of corn as "children." In the Saxton text, the narrator says, "they again went out and looked, and were surprised to see they [the corn plants] had borne children" (Saxton and Saxton 1973, 38). In the Hayden narrative, Corn says, "I am raising the young people" (Hayden 1935, 12). The narratives are placed in the context of a marriage to illustrate that these "children" are a successful yield from the union between the Tohono O'odham and the corn plant, and further, that reciprocal responsibility exists in the human/plant relationship. The expression of such a relationship also solidifies the notion that corn and sex are related and reinforces the idea that "marriage should synchronize with the awakening of sexual interest" (Underhill 1939, 179). When the

union of Corn and the woman or Corn and Tobacco is seen as inappropriate, the cultural belief that "it was not considered right to marry a relative on either the father's or mother's side" is reinforced, and the message that plants and people are related is confirmed (Underhill 1941, 45).

In the beginning of the Hayden version, Siuuhu creates corn and pumpkin seeds by rubbing his chest, and these seeds evolve into personified representations of plants, called "Corn man" and "Tobacco man." Similarly, Corn and Tobacco appear early in the Lloyd version, while Corn must travel toward the action of the narrative in the Saxton and Saxton translation (Saxton and Saxton 1973, 29-30). The main character in the Saxton and Saxton text is Corn alone. The indications that Corn has to travel westward for some time over mountains to get to the daughter's village are historically accurate because corn came to the Tohono O'odham from the southeast. This introduction--Corn traveling to the village with no mention of tobacco--suggests that the Saxton text may be part of a larger sequence of corn emergence narratives because the Hayden and Lloyd versions contain similar scenes of Corn's journey to a village after a passage about the relationship between Corn and Tobacco. Regardless of this variation, however, what remains significant is the articulation of the relationship between the Tohono O'odham and plants.

Corn and Tobacco are both male in the Hayden narrative. In Lloyd's version, however, Corn is male and Tobacco is female. This variation adds to the intriguing division of gendered interactions within the botanical realm. Traditionally, women harvest the wild plants while men tend the cultivated fields. In planting corn, men dig holes and women follow, dropping four seeds in the earth. But in the case of tobacco, men must

plant it in a secret place away from cultivated fields, in the realm of wild plants. According to Underhill, "Sometimes, all the men of a village meet together and sing all night, not only for corn but also for the beans, the squash, and the wild things" (1993, 43-44). Similarly, it is the harvest of the wild plant by women that begets the cultivated plant, corn, whose seeds are selected mostly by women. Women are responsible for cooking both wild and cultivated plants. Presumably, though, both men and women would need knowledge of the edible wild plants in their environment since a large part of their subsistence depended on them, especially in years when the rains did not come and no crops were planted. When Chona considered her feelings about gender roles, she remarked:

> You see, we have power. Men have to dream to get power from the spirits and they think of everything they can--songs and speeches and marching around, hoping that the spirits will notice them and give them some power. But we have power....Children. Can any warrior make a child, no matter how brave and wonderful he is? (Underhill et al. 1979, 92 [original emphasis])

It seems then, that no hierarchical structures are placed on knowledge of or responsibility for either wild or botanical realms--the interrelationships between all O'odham and the desert plants exist regardless of gender. What may be implied, then, is the recognition that all plants and all people are involved in dynamic ecological processes.

The struggles between plants expressed in these narratives dramatize the necessity of this awareness, for without tobacco, the O'odham cannot participate in the ritual ceremony that "pulls down the clouds." In the initial scenes of both texts, Corn and Tobacco play a game called "gins" or "gainskoot" and quarrel over each other's deceitfulness. According to Underhill, games "in the early days" were like "religious

ceremonies which helped to keep the world going.... when kicking a ball stuffed with seeds helped the seeds to sprout, and running races encouraged the sun on its course" (1993, 151).[6] Corn and Tobacco dispute their significance to the O'odham people:

> Corn says, "You are nothing, Tobacco, only the old people smoke you. For my part, man and woman and the children eat me, and I am raising the young people."
> Tobacco spoke: "I think the same thing about you, Corn, you are nothing. For my part, the medicine men smoke me, and doctors the sick people." (Hayden 1935, 12)

After they exchange insults, Corn and Tobacco both end up leaving the village. Corn travels to the east and Tobacco to the west. In the Lloyd version, after Tobacco leaves, Corn remains,

> but when corn planting time came none was planted, because there was no rain. And so it went on--all summer, and people began to say: "It is so, when Tobacco was here, we had plenty of rain, and now we have not any, and she must have had wonderful power." (Lloyd 1911, 223)

When the people of the village send a man to ask Tobacco to return, he refuses, but provides the messenger with seeds and planting instructions. Tobacco tells the man to "prepare the ground and put the seed in it.... if anybody wants to know what this man was planting, he would not tell them what he was planting. If this man tells the people what he was planting, the tobacco wouldn't come up" (Hayden 1935, 13). According to Castetter and Bell,

> the Papago never grew tobacco in their fields, for it must be grown in secret and a man must be in the right spirit when planting. One who planted it must not let anyone see him do so, and, when visiting his tobacco patch which was out of sight of all the other fields, took a circuitous route so that no one would suspect or learn where he was going. If someone discovered the patch and saw the young plants, they would dry up. (Castetter and Bell 1980, 215)

Again, the sacredness of the plant is reinforced and the realm of wild and cultivated plants

is negotiated by human caretakers.

Corn also provides planting instructions to the people in these narratives. When he returns to the villages in the Hayden and Lloyd texts, Corn suggests that the people should turn their pots, or ollas, right-side-up to prepare for the rains:

> So for this reason the corn man told this girl that they should make a special house for him. It was this reason that he was going to stay with the people. And he also told her to tell them to clean up their homes and get everything ready such as dishes or pots; they must turn everything up. (Hayden 1935, 15)

This harvesting lore is a direct reference to the preparation for the rain ceremony that brings corn to the Desert People. After the women hook down the ripe fruits of the saguaro and remove the red pulp, they leave the fruit husks turned upwards toward the sky in anticipation of the coming rain.

In all three narratives, Corn encounters a young woman upon his arrival in the village and these scenes yield more information on significant Tohono O'odham plants and their uses, especially ritual food preparation. The buds and fruit of the saguaro, jumping cholla, and prickly pear are all important wild plant species to the O'odham, both in ritual ceremonies and everyday use. According to Castetter and Bell,

> anciently [the O'odham] in average years cultivated only about one-fifth of their total food supply, four-fifths consisting of wild plant and animal products, supplemented by such variable amounts of cultivated foodstuffs as were secured from the Pima and their relatives in the San Pedro and Altar valleys in exchange for labor. In years of poor crops the balance was shifted even further in the direction of native wild foods and reliance upon these relatives and friends. (Castetter and Bell 1980, 57)

All versions also refer to the addition of either arrows or whiskers by Corn to the cooking hole and the subsequent transformation of cactus into corn and pumpkins. In the

Saxton text,

> Corn pulled out some of his whiskers and threw them on the cactus buds. The old woman went across and poured more cactus buds in the cooking hole. She poured four basketfuls in. And Corn threw his whiskers on the cactus buds four times.... When they [the women] arrived [the next morning] and uncovered it, they looked and it wasn't cactus buds, but something strange.... Right away Corn came and took one and shucked it and cleaned off the whiskers saying, "This is eaten like this at my home." Then the people ate the corn and liked it because it really was good to eat. (Saxton and Saxton 1973, 33-36)

The Saxton version is perhaps the most explicit, describing how an old woman and a young woman gather rocks, cook cactus buds in a cooking hole in the ground, and speak to their food, saying, "I will put you here and you will cook well" (Saxton and Saxton 1973, 32-33). Corn reinforces the need for Tohono O'odham listeners to learn and practice such rituals, saying, "I think your cooking must do well since you have talked to it and buried it" (Saxton and Saxton 1973, 33-34). The listeners' interest is piqued in all versions of the corn emergence narratives because they are both aware of Corn's actions and cognizant of the fact that the old woman did not see Corn shoot the arrows or pull out his whiskers.

The number of times Corn supplements the cactus-- four--is significant because Papago "kinship ascends four generations...cycles are often associated with the points on a compass...and the features of completeness are carefully woven together in narration" like the coils woven around the centerpiece, or the beginning place, of an O'odham basket (Saxton and Saxton 1973, 374). In terms of dramatic presentation, Corn's arrows or whiskers may serve as a signal to the listeners that the action of the story will hinge on the result of this addition. In the Saxton version, another level may yet exist that embodies

magical power, for "four was the sacred number and four times four was particularly magic" (Underhill 1941, 58). Corn adds four whiskers, the old woman adds four basketfuls of cactus, Corn stays for four days, and the people sing corn songs for four nights. These narrative possibilities dramatize the O'odham sensitivity to the cycle of reciprocity that exists between the cactus, rain, corn, and humans. The rain ceremony brings cactus wine to invoke the rain and, in turn, the rain brings the precious moisture needed to grow corn. The Tohono O'odham initiate the wine ceremony with the harvest of the fruit and maintain this cycle with the harvest of corn.

Corn directly relates planting instructions in the Saxton text, including "where to plant this food and what to sing to it so it will come up and ripen well" (Saxton and Saxton 1973, 37). When Corn is ready to give this information, the "old man went out and stood on top of his house and announced the invitation for them to gather there and hear something" (Saxton and Saxton 1973, 37). Bernard Fontana confirms the reality of this traditional broadcast in his thoughtful book on the Tohono O'odham Of Earth and Little Rain: "Village criers shouted news from a single public structure--a roundhouse located near the headman and within shouting distance of the village" (1989, 48). The inclusive statement "tell all your relatives to come here" and learn about the rituals surrounding corn, evokes a communal sense of interdependence among the Tohono O'odham as well. For the O'odham, "migratory life...which expressed itself in seasonal movement use between two kinds of villages...greatly fostered this spirit of giving...generosity was a high virtue and giving was truly an investment in good will" (Castetter and Bell 1980, 45-46).

Corn's instructions may be a form of ritual speech through which culturally specific knowledge is conveyed. Corn literally provides a cultivation framework in this section, saying, " ...when it is about to rain, you will look for good ground. At the arroyo mouths the land is moist and soft. Plant this food there" (Saxton and Saxton 1973, 37). This is a direct reference to the traditional Tohono O'odham practice of Akchin, or floodwater farming, in which seeds are planted in moist ground at the mouth of an arroyo after the first monsoon rains in late summer (Castetter and Bell 1980, 44). The expression of this valuable cultivation information provides an intersection between the multiple layers of the text, illustrating both literary quality and the literal transmission of Tohono O'odham agricultural history.

In the Lloyd collection, Corn makes two ritual speeches that contain figurative images of the emergence of corn and planting instructions (Lloyd 1911, 226-28). Corn suggests that the "Bluebird took the blue grains of corn from his breast and then planted them, and they grew into beautiful tall corn....And Biveschool [a kingfisher or other type of bluebird] took white seeds from his breast and planted them, and they came up and were beautiful to be seen [pumpkins]" (Lloyd 1911, 228). In his second speech, Corn provides information on when and where to plant--when "every valley had foam in its mouth. And in the mouth stood the Doctor [Elder Brother], and [he] took the grains from his breast and planted them, and the corn grew and was beautiful" (Lloyd 1911, 228).

After the return of corn or the planting instructions, the people receive corn and pumpkins in the form of rain and thunder. In the Lloyd translation, Corn and his wife are in their house while outside, it "began to rain corn, and every little bit a big pumpkin

would come down bump" (Lloyd 1911, 275). "When Corn got to the land he mentioned," say Smith and Allison, "it came like hail, it rained corn, it rained pumpkins in every dish, and filled everything that they had turned up" (Hayden 1935, 15). These images suggest that the union of corn and the woman is symbolic of the potency and fertility of the late summer monsoons. Corn describes the planting and harvesting rituals, but more importantly, he alludes to the reciprocal relationship between a people and the plant they cultivate. Chona remembers a story of corn emergence that dramatizes the Tohono O'odham relationship with corn and expresses specific cultivation lore:

> In the summer everyone came home to our village and we planted corn. The corn was once a man and he lured a woman away to sleep with him. She stayed a long time, and when she came home, she knew the songs that made the corn grow. So when the men all went to their meeting, this man did not go but he stayed at home hearing his wife sing.... We sang those songs as we put the corn into the earth, but it was the men who sang, for women do not do those things now. We stood ready with the corn kernels while the men sang, then we went down the field together, each woman behind a man. The man dropped his stick into the soft earth, thud! As deep as my hand is long. The women dropped in four kernels and scraped her bare toes over that red earth to cover them. Then the corn came up. The fair stalks, the thick root, the broad leaves. (Underhill 1993, 52-53)

As these plant emergence narratives and Chona's words express, there is a need for maintenance between the O'odham and the corn they grow, for one would not subsist without the other. In fully developed maize "the kernels [are] attached to a rigid cob and enclosed in a tight-fitting leaf-sheath or shuck. Such a form could never survive in nature as the seeds are non-dispersible and can only be sown artificially" (Hawkes and Woolley 1963, 274). Because the seeds remain embedded in the cobs when they fall to the ground, corn is not self-germinating. This botanical fact creates a responsibility that binds the Tohono O'odham to the plant they cultivate. This relationship heightens their awareness

of the need to prepare seed for future generations. In fact, the "only reason we have corn today is that for thousands of years humans have selected seeds and planted them" (quoted in Wolkomir 1995, 102). Even though the desert is a difficult area to maintain an agricultural subsistence, the Tohono O'odham traditionally grew eleven types of corn, including red corn, two types of white corn, three types of yellow corn, two types of blue corn, crazy corn, and laughing corn. These varieties were stored and planted separately

> and never allowed to mix. When harvested the grains might be removed from the cob with a stone scraper, then parched and dried on a mat on the roof, or whole ears might be roasted. In this case a fire was made in an open pit and the ears thrown in on the hot coals when it had burned down. Two women turned the ears with green mesquite sticks (Prosopis veluntina), allowing them to roast for several minutes and throwing them out on a bed of grass. These roasted ears were dried and beaten to remove the grains, which were then winnowed and stored in a basket to be ground into meal when needed; they were also cooked whole with meat. (Castetter and Underhill 1935, 34-36)

Corn's actions in these narratives also reinforce the importance of singing to the crops. In fact, "Song is a narrative form" for the Tohono O'odham (Bahr 1975, 103). Underhill observed that the O'odham "sang in trouble, in danger, to cure the sick, to confound their enemies, and to make the crops grow. They sang as they fought and as they worked, all together" (Underhill 1993, 5). Although specific words of the ritual growing and harvesting songs may not be contained in the narratives, the mere mention of a song in a particular place in a narrative may call the melody of the words into being for the Tohono O'odham. Underhill communicates the potential diversity of O'odham plant songs:

> Night after night, the planter walks around his field "singing up the corn." There is a song for corn as high as his knee, for corn waist high, and for corn with the tassel forming. Sometimes, all the men of a village meet together and sing all night, not

> only for the corn, but also for the beans, the squash, and the wild things. (Underhill 1993, 43-44)

Many Tohono O'odham ritual songs contain metaphorical descriptions of the "appearance of clouds, the occurrence of thunder, lightning, of rain and water running in the arroyos, of corn growing and fruiting. The purpose [is] to assist in producing a plentiful harvest and to give thanks for favors already bestowed" (Castetter and Bell 1980, 227-28). As Corn suggests in the Saxton text, "Whoever learns many of these songs of mine and sings well for his crops, they will come up and ripen well. Whoever does not learn many of these songs of mine and does not sing them to his crops, not much of his crop will come up" (Saxton and Saxton 1973, 37-38).

The ritual harvesting song "Singing Up the Corn" expresses the interrelatedness between the animal, plant, and human worlds is expressed (Underhill 1993, 44-47). The first stanza details when the O'odham sing the ritual and when the corn grows, as "Evening is falling." Stanzas two through nine represent the movement of growing corn--from the "corn tassels trembling" to the night moving and "singing"--creating rhythmic patterns through repetition and lucid phrasing. In the rain-bringing and corn-harvesting ritual Wi:gita, effigies are made of important plants, such as corn, beans, squash, and tobacco. Perhaps the "stick I cut to represent the corn" symbolizes this tradition. One of the most intriguing possibilities in this song is the verbal omission of the key natural force that initiates and governs the success of the O'odham crops--rain. If language begets reality for the Tohono O'odham, as suggested by Underhill and throughout the context of the narratives, then it seems specific mention of rain would be necessary. However,

linguist William Pilcher believes that

> the Papago abhor the idea of making definite statements. I am still in doubt as to how close a rain storm must be before one may properly say t'o tju: (It is going to rain on us), rather than tki 'o tju:ks (something like: It looks like it may be going to rain on us). (quoted in Nabhan 1982, 6)

The phrase "Blue evening falls" may speak symbolically of the coming rain, thus creating a reality that does not rely on conclusive statements, but parallels the intangible hesitation of the rain across the dry desert.

In the Hayden narrative, there are fifteen plant emergence songs. Just before the corn emergence narrative begins, Siuuhu sings the first three songs about the coming of the wind and rain to the fields. The corn "has tassels on the top/ And it is swaying back and forth/ And singing/ And the blossoms of the pumpkin/ Are swaying back and forth/ And singing" (Hayden 1935, 11). Siuuhu also sings about the "little white bean" and the "speckled bean" (Hayden 1935, 11).[7] Tobacco sings one song "Black bob cat/ Towards the sunset/ Is going/ Hay ya ha'a'hah--(crying)" (Hayden 1935, 12-13). Smith and Allison comment that this song has "no meaning, just the way his mind went when he was sad" (Hayden 1935, 13). Many of the songs are sung by Corn. They express description, "My stalks are stout/ And are standing straight up/ My fruit is stout/ And are standing straight up" (Hayden 1935, 13); and direction, "I ran and I met this girl/ A cliff which decorated itself very pretty/ I'm getting closer to top-oiduk" (Hayden 1935, 13). The language and images in these songs imitate the movement of corn growing. The girl Corn marries also has a song in the narrative. She sings to the Corn, "You have made a woman out of me," again suggesting the idea of a reciprocal marriage between the O'odham world and the

plant world (Hayden 1935, 14).

The Saxton and Lloyd versions end with stories of Coyote. In some ways, Corn resembles the Coyote figure represented in many Native American literatures. Coyote often dramatizes the realm of all possible behaviors, usually those actions which are the antithesis of culturally accepted behavior. In "Where People Got Corn," Corn also attempts to perform an action for the good of the community by providing corn, but somehow manages to ignore rules for proper behavior. In a community where relatives and close neighbors were historically depended on for subsistence, independent attitudes, such as Corn's references to his looks and his powers, would isolate an individual, as they often do Coyote. As seen in many Coyote narratives, Corn reveals the tension between the possession of superhuman powers and the acknowledgment of human weaknesses. Corn also maintains a dual identity wherein he is representative of both human and botanical potential. In a sense, Corn is both.

So, it is intriguing that the Lloyd and Saxton versions end with Coyote stories, the Badger and Coyote story and "The People Plant Corn," respectively. Coyote, in his "lazy and sleepy-headed" way, eats the seeds he should have planted and forgets to learn the proper words for "singing up the corn" in the Saxton text. He plants his seeds along the banks of the arroyo, instead of at the mouth, and the song he composes is awful and not at all as "beautiful as Corn's songs." Coyote dismisses the Tohono O'odham belief that the "power of song was an honor to be earned; it could not be assumed lightly at the mere whim of an individual" (Underhill 1993, 6). Coyote "never did find good land," and is impatient about the ritual requirements of planting corn. As a result, a different plant

comes up called Coyote's tobacco.

This story provides the origin of the name of the plant called Ban wiwga, Coyote's tobacco, but on another level, the narrative dramatizes what might happen if the proper planting rituals are not followed or taken seriously. The stories illustrate the Tohono O'odham worldview, which embraces reciprocal relationships among humans, plants, and animals, and recognizes the wisdom of elders, and significantly, the ability to survive in a desert environment. These narratives express cultural messages about proper behavior for young men and women. There also exists a strong ecological message concerning the planting, seed preparation, and ritual harvesting of corn. An emphasis is placed both on learning the proper words of the ritual songs and listening to the words of elders, through whom the songs and cultural taboos are expressed. In terms of literary structure, the story is unified by the continual references to the cultural message introduced in the beginning of the story: that tribal elders impart important and necessary cultural information to members of their community through stories.

The Wild Plant Emergence Stories--Saguaro

The Tohono O'odham say that the hahasan look like people in the light of early morning and late afternoon when their shapes are defined by shadows and the backdrop of an expansive landscape. Some, in groups, look like families, they say. On a descriptive level, the giant, columnar cacti may appear as gangly human shapes, but, for the O'odham, this "humanness" is symbolic of their reciprocal relationships with plant communities. The fruit of the saguaro provides ceremonial wine that aids in rain-bringing as well as everyday

subsistence. Like the children whose burial they emerge from, the saguaros must be cared for because the survival of Tohono O'odham identity and subsistence depends on their existence.

The cultural values and ecological knowledge contained in the saguaro emergence narratives reinforce ideas expressed and dramatized in the stories of corn emergence. Essentially, one plant propagates the other, with the O'odham acting as pollinators in an interconnected chain that links the survival of cultivated and wild plants to one another and to their human counterparts. In many stories of how the saguaro cactus (Cereus gigantius) comes to the O'odham, children go in search of their mother. As they wander, the may come close to her, but ultimately, are buried or sink into the ground. From this place, the saguaro grows.

For the Tohono O'odham, the tall saguaro cactus is an essential wild plant. Jam, seeds for meal and feed, wine, syrup, pulp, oil, snacks, soft drinks, and vinegar can be made from the saguaro (Crosswhite 1980, 18). The harvest of saguaro fruit marks the beginning of the O'odham calendar year and the making of libations for rain-bringing ceremonies. The succulent fruit of the saguaro is harvested with long, slender sticks. The green, egg-shaped husks of the fruit are left right-side-up on the ground to collect the coming rains.[8] The pulp of the fruit is boiled and fermented into a dark wine during the ritual Nawait I'i, or Wine Drinking, part of the rain-bringing ceremony. For four days the desert people sing, recite poetry, chant, drink, and call upon the clouds for rain, giving thanks for what they already have and giving salutations to their new year.

In a narrative collected and edited by Harold Bell Wright in the 1920s called "The

Giant Cactus," a young boy goes in search of his mother (1929, 109-122). She has traveled to a distant village to play Taw-kah.[9] When his mother does not come for him, the boy sinks into a tarantula's hole as children sing him into the ground:

> ah-ah-lee--the children--formed a ring around the boy and began to dance and sing. And as the boy and the children danced and sang the boy sank into the tarantula's hole. With the first song he sank as far as his knees. He asked the children to sing louder and to dance harder. And as they circled around him singing and dancing he kept on sinking into the ground. (Wright 1929, 114)

When the mother arrives at this place, the boy has disappeared under the earth. Coyote offers to help her dig the boy out, but ends up eating the boy because he "was hungry with all his work and he didn't see why he should take this boy to a mother who never did anything for her son" (Wright 1929, 115). Coyote tells the mother that bones were all he could find and they return the bones to the ground. In four days,

> something green came out of the ground on the spot where the boy's bones were buried. In four more days this green thing was a baby saguaro--ah-lee-choom hah-shahn. And this was the first sahuaro, or giant cactus in the world. (Wright 1929, 116)

In another version of saguaro emergence told by Susie Ignacio Enos, "The Papago Legend of the Saguaro," a young girl's burial is the source of the appearance of the giant cactus (1945, 64-69). Before her father dies, he says the girl, Sugu-ik Oof, "will be the queen of the Taw haw naw Juwut (desert lands). Generations of Aw'awtam will be saved from starvation because of her and her family" (Enos 1945, 64).[10] As time passes, the girl's mother must leave her alone while she goes to the next village in search of food. When the daughter grows up, she feels lonely and decides to search for her mother. The daughter is befriended by Little Gray Bird who shows her the village where she might find

her mother. When the young woman cannot find her mother in the village, she begins to "chant a song.... She chanted on and on. When finally the children looked at her, they saw she had sunk halfway into the ground" (Enos 1945, 66).

After a year passes, her mother goes to place food and water on the place where the girl sank and "she noticed a queer plant had come up in the very place where her daughter had gone. So the woman began to water the plant and to take care of it, till it grew into a tall and stately plant" (Enos 1945, 66-67). As the mother grows older, the cactus buds

> grew and grew and when the desert flowers just began to peep out of the ground, the queer plant bloomed forth into a beautiful white flower. After the flower had gone a fruit formed and this grew from a green to a red fruit.
>
> One day when the flowers had gone to seed and the desert began to swell with the desert heat, the fruit of the stately plant burst showing forth a scarlet red. When it had fallen to the ground Sugu-ik Oof's mother ate some of it after she had seen the birds eat it when it was still on the plant. She tasted that the fruit was delicious and so she gave some to the other people and they liked it too. (Enos 1945, 67)[11]

But the children grow angry because the birds can easily reach the fruit on top of the tall saguaros. The children shoot arrows and throw rocks at the birds, but one day "at the time of ripening of the fruit the children ran out to get at the fruit before the birds, [and] they found that the hash'an had disappeared" (Enos 1945, 67).

Similarly in "The Giant Cactus," the children poke sticks in and shoot arrows at the giant cactus, and this "made Giant cactus very angry. He sank into the ground and went away where no one could find him and he could live in peace" (Wright 1929, 116). The people of the village regret this outcome and they ask the birds and animals to help them find the cactus. Crow eventually finds the giant cactus and sees that it has fruit.

After Crow informs the people he has found the cactus, he returns to collect the fruit and brings it back to the village:

> Crow put hah-shahn pah-hee-tahch--the cactus fruit-- into ollas, which are large jars, and which were filled with water. Chief placed the ollas on the fire and from sunrise to sunset the fruit was kept boiling.
>
> For four days this syrup--see-toe-ly--was cooked. Then Kooh--the chief--told all the people to prepare for a special--nah-vite ee--which is wine feast, or wine drinking. They were to have a wine which they had never had before. (Wright 1929, 118).

The animals dress in bright colors for the ceremony and the birds become jealous. During the ceremony, the birds begin to fight and the chief does not approve. He collects seeds and tells his messenger to take them away. In the Enos narrative, it is Little Gray Bird who finds the cactus. The cactus actually speaks in this version, telling the people that they must share the fruits with the birds. Again, it is a bird, Nooee, who finds the place where the cactus emerges and informs the people.

In the Enos text, Badger steals the seeds of the saguaro. Toehahvs, or Coyote, asks to see the seeds and then hits Badger's hands from underneath, causing the seeds to scatter. Coyote also appears in the Wright version in much the same manner. After begging the chief's messenger to see what is in his hands, Coyote strikes the messenger's hands from below and the seeds fly into the air, scattering the saguaro over the desert.

A striking deviation from these narratives is a version of a saguaro emergence story told to Daniel Matson by Jose Ramon in 1942.[12] In this story, Bitter Doctor hears his daughter weeping and asks her what is wrong. When the daughter tells him that a man she does not know comes to stay with her during the night, the father decides to place the

"ko'otop ha' ichu hiosik," the flower of the datura (Datura wrightii), in her vagina.[13] The man returns during the night, and in the morning, the father takes out the datura flower and buries the seed in a place where the ground is wet. In four days, the saguaro emerges from this place. Similarities to the other versions begin here, as the cactus goes away and its location is discovered by birds. The birds become drunk on the wine created from the saguaro fruit by Bitter Doctor and begin to fight.[14] Blood from the fight paints the head of a bird red as it does in the "The Giant Cactus." The Matson version also ends with an expression of how the grasshopper's appearance came to be, again, similar to a story about grasshopper in the Wright version.

These stories all share the emergence of the saguaro from children and, subsequently, the harvesting of its fruit and the making of wine. Like the stories of corn emergence, these narratives provide a framework within which cultural ideas and ecological data are expressed and dramatized. The stories of saguaro emergence dramatize cultural attitudes about the saguaro as a wild plant with ritual and subsistence value, one they would regret losing. Botanical knowledge is also articulated through these narratives, including descriptions of the saguaro and its fruit and information about where saguaros grow--"high on the west side of the mountain" where "there was nothing but rocks and where no animals nor Indians ever hunted" (Enos 1945, 68; Wright 1929, 117).

In the Enos and Wright versions, each mother continues to care for her child after his or her burial, and later, for the plant itself. The narratives function as manifestations of reciprocal nourishment and care between the O'odham and wild plants. The mother cares

for the plant, and in turn, the plant will later provide the means through which the rains and subsequent harvest occur. Similarly, the corn emergence stories express the nature of dynamic human/ plant interactions through literal and symbolic representations of children and the necessity of learning cultural, ritual, and ecological traditions.

NOTES

[1] The complete cultivated plant emergence narratives authored by Saxton and Saxton, Lloyd, and Hayden are located in Appendix D.

[2] The other version is Frank Russell's 1908 Bureau of American Ethnography collection "The Pima Indians." These stories were narrated by the O'odham informant Thin Leather (also, Thin Buckskin).

[3] The page references in this discussion refer to Julian Hayden's original manuscript, with title page addition by Donald Bahr. The manuscript, reprinted in part in this study with permission by the author, is available at the Arizona State Museum Archives, University of Arizona, Tucson, file A-215.

[4] Hereafter, "Saxton."

[5] At a book reading with Mas Masumoto, author of Epitaph for a Peach: Four Seasons on My Family Farm, he asked the audience how we select our fruits and vegetables at the grocery store. Some people said they squeeze, smell, press, or judge by depth of color. Masumoto went on to encourage everyone to develop a personal relationship with the food we grow and eat.

[6] I have encountered a variety of narratives where balls made of seed or clay are used in traditional games. Further, they symbolize fertility, often acting as the means by which a woman becomes pregnant by rolling under her dress. For examples, see the Plains Arikara story told by Alfred Morsette, "The Young Woman Who Married the Moon" (in Douglas R. Parks, Traditional Narratives of the Arikara Indians. Vol. 1. [Lincoln: University of Nebraska Press, 1991]), and Frank Hamilton Cushing's Zuni Breadstuff (Frank Hamilton Cushing, Zuni Breadstuff. [New York: Museum of the American Indian Press, 1920]). The Zuni would bury a clay ball near their cultivated spaces where they wanted to encourage rain to fall. In many Tohono O'odham narratives that dramatize the birth of Ho'ok, this maligned creature results from a pregnancy conceived when a ball rolls under a young girl's dress.

[7] Beans made up a large part of the Tohono O'odham diet, even the name Papago was derived from "Papabote, meaning "Pima-bean-eaters," after their principle bean javapi or papabi, however, I found only brief mention of the emergence of beans to the people, no personification of beans, and no separate "bean emergence stories.

[8] In Ruth Underhill's eloquent The Autobiography of a Papago Woman, Chona remarks "At last the giant cactus grew ripe on all the hills. It made us laugh to see the fruit on top of all the stalks, so many, and the men would point to it and say: "See the liquor growing." We went to pick it, to the same place where we always camped, and every day my mother and all the women went out with baskets. They knocked the fruit down with cactus poles. It fell on the ground and all the red pulp came out. Then I picked it up, and dug it out of the shell with my fingers, and put it in my mother's basket. She told me always to throw down the skins with the red inside uppermost, because that would bring the rain" (1985, 40).

[9] Ruth Underhill transcribes a very similar, shorter version of the emergence of the saguaro in Papago Indian Religion. A baby is deserted by its mother and after sinking into the ground, emerges as a saguaro. Crow finds the cactus, eats its fruit, and subsequently vomits into a basket, thus demonstrating the use of saguaro wine in the rain ceremony (1946).

[10] According to Castetter and Bell, "When the wild foods ripened, large quantities were gathered and stored, but just before the giant cactus harvest, food became very scarce, as indicated by one of their [O'odham] names for the period [just before the monsoon season] that would correspond to our month of May, ko' ohk macat, "the painful moon" (1980, 45).

[11] Enos comments, "There are songs that the people sang when they tasted the fruit and after they again found the plant. There are songs that the mother sang. All these I do not know. So I have written them as part of the story" (1945, 69). The Hayden manuscript contains the following songs associated with the emergence of the saguaro:

I went out
And I'm sadly going
Towards the west.
I'm looking at saguaro blossoms

And I'm sadly handling the cactus.

I am going towards the east.
I am sadly looking at young cactuses,
With ripe fruit on it.
I am sadly handling them.

(the drunkard's song)
Some blooming, blooming wind (like pretty perfumed flowers)
I'm sending my wind (power)
I'm making the earth turn yellow

They have come to their blooming,
Wine,
I drank it and I am drunk (noda)
So I am sending out clouds
And everywhere it's turning green

They gave me that red water to drink,
And when I drink it
I am drunk,
And I am making
Some rainbows.

You have given me
Some crazy water (nodigum schrodek)
And you have made me drunk.
The ground is getting damp. (He makes rain).
(Hayden 1935, 22)

Ruth Underhill, Frances Densmore, Dean and Lucile Saxton, G. Herzog, and Frank Russell have collected songs associated with the saguaro harvest and rainmaking ceremonies.

[12] This version is available at the Arizona State Museum archives, file A-677a, at the University of Arizona, Tucson.

[13] The large, trumpet-shaped corollas of the datura are generally withered by morning. This narcotic plant grows in arroyos and on plains. Curtain mentions that the buds were gathered early in the morning and the water or dew they contain has medicinal properties when heated. Among the Yaqui, an infusion of datura leaves mitigates the pains of childbirth. This use is intriguing because the result of the semen and the ground is the "birth" of the saguaro (Curtain 1949, 85-86).

[14] Curtain's By the Prophet of the Earth also contains a transcription of the saguaro emergence story which lacks the burial of a child. In this version, birds make the saguaro wine and are the first to consume it:

> A very small bird like a swallow, but larger than a sparrow, became drunk and fell to the ground. Everyone walked on him and flattened out his head, so that now he is called komalk-maw-okam (flat-head). The mocking bird (Shook) was the next to become drunk. He then began to talk and is still talking. The whip-poor-will, who has a large mouth, wanted to impress the girls by spitting, and he secretly used a straw for this purpose with great success. (Curtain 1949, 136)

This version also contains a reference to the grasshopper.

CHAPTER 4

HARVEST: THE CULTURAL AND ECOLOGICAL SIGNIFICANCE OF TOHONO O'ODHAM PLANT EMERGENCE NARRATIVES

"Though I do not believe that a plant will spring up where no seed has been, I have great faith in a seed. Convince me that you have a seed there, and I am prepared to expect wonders." --H.D. Thoreau

During the late summer of 1938, Tohono O'odham farmer Chico Santos whistles as he walks across his desert fields at the mouth of an arroyo, carrying a planting stick and seeds of white, yellow, and red corn in a small pouch. Monsoon rains have saturated the adobe soil of his fields and heavy moisture carrying the odor of creosote falls on his hot shoulders. He wears a long-sleeved cotton shirt and work pants, creased with desert soil where he has stooped to drive the planting stick into the ground to make narrow holes, then carefully turns the stick to make shallow circles around the holes. Water runs through short, shallow ditches and clusters of small brush, spreading out past velvet mesquite trees and across the alluvial plains. Kneeling, he plants the seed and speaks to it in the old way, saying, "Now I place you in the ground. You will grow tall. Then they shall eat, my children and my friends who come from afar." The scrubby, suddenly-green vegetation on the banks of the wash and the hedge rows Chico has created in his field attract lavender-blue butterflies, terrestrial animals, grasshoppers, crickets, hawks, and doves. In his fields also grow 'oidag c-ed 'i:waki, like amaranth, lambsquarter, bursage, and wild gourds. As he leaves his fields for the day traveling down a worn path, Chico

remembers the song his father used to sing at night while the corn was growing: "I saw tassels waving in the wind/ And I whistled softly for joy."[1]

As this story suggests, there is an intimate relationship between the cultural world of the Tohono O'odham and the ecological world of the Sonoran desert. This relationship is necessitated by the arid landscape, but in many ways, the land inhabits the O'odham people because, for centuries, the people and the landscape have evolved together. Nowhere is this consanguinity more apparent than in the traditional O'odham relationship with the wild and cultivated plants of the desert southwest. And it is through their stories of plant emergence that this interdependent relationship is articulated and animated. The Tohono O'odham approach to cultivation rests on the foundation of reciprocal responsibility between plant and human worlds. In the stories of how cultivated and wild plants come to the O'odham, personal relationships with the food they cultivate and harvest from the wild are dramatized. By looking at these narratives as dramatizations of the kinship between human and botanical worlds, it becomes clear that

> the way one farms and cares for local resources has everything to do with the spiritual life of the community. These cultural communities offer us insights into the mutually reinforcing connections between a sufficiently earthly spiritual life, and skilled concern for the ecological integrity of food-producing land and plants. (Nabhan 1989, 71)

This chapter discusses these connections and asks what we may learn from them in the context of our current predicament of environmental mismanagement, with an examination of O'odham traditional agricultural practices and the need for preservation of genetically-diverse ecological communities. This conversation is framed by the works of Thoreau and Aldo Leopold, and the contemporary writings of Edward O. Wilson, who

have recognized the significance of an interdependent relationship among biotic communities. Traditional O'odham oral narratives views of plant/ human communities, at least in part, echo and answer the calls of Thoreau, Leopold, and Wilson, and offer agricultural and spiritual solutions. If we pay attention to the knowledge articulated in these stories, the opportunities to learn about the interrelatedness of human and ecological communities are immense.

When Thoreau went to the woods in 1845 to "front only the essential facts of life," he contemplated the human relationship with and the ecological complexities of Nature, its "bloom of the present moment," and asked Nature, the "most extensive and experienced planter of us all," how to live deliberately (Bode 1947, 343-363). Leopold responded to the essential questions of Thoreau's meditations with an ecological perspective that "tells us that no animal--not even [hu]man[s]--can be regarded as independent of [their] environment. Plants, animals, and soil are a community of interdependent parts, an organism" (Bode 1947, 209). Wilson acknowledges the urgency of remembering and responding to ecological lessons learned over time--the cultivation lore in O'odham stories, the words of Thoreau, the evolution of Leopold's ecological consciousness--and places emphasis on the "preservation of entire habitats and not only the characteristic species within them" (Flader and Callicot 1991, 259). To preserve the wild plant diversity in the southwest, for example, requires more than efforts to save singular species like saguaros--long-nosed bats pollinate saguaros, trees provide shelter and shade for young saguaros, birds make homes in saguaros and enjoy its fruit, and human communities rely on its existence for the preservation of cultural and ritual identity.

As Chico Santos walks along the path from his fields, he is thankful for the rains, the moist soil, the seeds, and the foodstuffs that will soon nourish his family. His path, his story, symbolize years of trial-and-error co-evolution between plants and people in the desert. The stories and songs he remembers speak of survival--both O'odham and plants. Although paths like his are traveled by writers and scientists, poets and naturalists, essayists and keen observers, today they remain grassy and in need of caretakers. For along the trail many people have forgotten to consider the power of language in oral traditions, the adaptations and dynamic interactions of plants and people within their native communities, or the work of a delicate hummingbird carrying pollen from red flowers on its shiny, small head. The path humans have chosen now leads through an uncertain forest, a dark wood where ecological communities--including plants, animals, and humans--are lost before they are seen, heard, or felt. Moreover, we lack personal and reciprocal relationships with the landscapes that hold us accountable for the extinctions of these communities. According to biologist Edward O. Wilson, "Unless an effort is made to understand all of diversity, we will fall short of understanding life... and due to the accelerating extinction of species, much of our opportunity will slip away forever" (1988, 14). In contemplating this place on the path where we stand now, we must ask the essential question considered by Henry David Thoreau more than one hundred years ago: *How shall we live?*

Historically, this question has been answered by whatever means are the most convenient, motivated by development of the land and economic profit. The history of different Native American groups is extremely varied depending on original contacts with

Euro-Americans, physical landscapes, ceremonial and ritual traditions, and language. The well-worn, wild plant gathering paths and the dusty mouths of arroyos awaiting rain have been plowed under by "progress" in agricultural practices without consideration for the biological diversity of the plant, animal, and human communities. Historian Alfred Crosby suggests that one-directional confrontation with Old World germs, seeds, and animals transformed entire ecosystems in the Colombian age of exploration and exchange (1994, 185). Nineteenth century land-use policies and other treaties, such as the Dawes Act of 1887, also disrupted Native American communities by depriving them of agricultural land, introducing new methods of land management, invalidating traditional belief systems, and dramatically affecting hunting practices.

The co-evolution of traditional Native American oral narratives and landscape was dramatically punctuated by conflicting Native and European American ideas of nature and culture. European ways of thinking were dominated by the ideas of civilization and savagery. For European Americans, savagery was defined as

> hunting and gathering, not agriculture; common ownership, not individual property; pagan superstition, not Christianity; spoken language, not literacy; emotion, not reason. Savagery had its charms but was fated to yield before the higher stage of civilization represented by white Americans. Interpreting Indian/white relations in these terms, Euro-Americans seldom glimpsed the complexity and integrity of Indian cultures. This misunderstanding was certainly significant. Nonetheless, overstressed, it draws our attention away from the essential matter of property. All the cultural understanding in the world would not have changed the crucial fact that Indians possessed the land and that Euro-Americans wanted it. (Limerick 1987, 190)

For Native American communities in the West prior to European expansion, however,

> there was no "great American dialectic"of civilization and savagery at all, no "frontier"--their songs and stories were those of a people entirely at home. Their historical frame of reference was different from that of the European Americans,

> obviously...but more important, their metaphysical reference was radically different. (Lyon 1994, 733)

The European American "drive toward perpetual expansion--or personal freedom--is basic to the human spirit," suggests Wilson, "but to sustain it we need the most delicate, knowing stewardship of the living world that can be devised" (1988, 16). In order to gain a "knowing stewardship," we must understand the world around us as an ecological system of which we are a part and in which our actions matter significantly. Further, we must attempt to comprehend the folklore of others--their cultural values, beliefs, and traditions--as it is expressed and dramatized through their narratives.

On the one hand, narratives survive because they are adaptable to cultural and ecological changes. In "The People Plant Corn," for example, Coyote's actions dramatize the need for reciprocity between the Tohono O'odham and the plants they cultivate. The narrative may express cultural responses to changing agricultural practices and address fears about loss of planting and harvesting rituals among the O'odham. On the other hand, when the cultural and ecological changes are so dramatic that entire agricultural systems are questioned, and in some cases, abandoned, the need for narratives as containers of planting and harvesting rituals diminishes. In other words, we must ask what happens to O'odham narratives that dramatize the cultural significance of rain-bringing ceremonies or the ritual planting of corn when water wells and irrigation systems are established or there are fewer than one hundred acres being farmed on more than 20,000 square miles of land.

The study of the ecology of traditional Tohono O'odham agricultural systems and the plant emergence narratives that embody their cultivation lore illustrates that

> native crops are directly dependent upon management by humans; therefore, they have evolved in part under the influence of farming practices of particular cultures. As such, native crop diversity directly reflects a region's cultural diversity. It is awkward to view these resources merely as a set of genes that can be conserved simply by depositing them in a gene bank. If isolated from the folk science and traditional uses of the cultures that have nurtured them, they lose their historical cultural context. (Nabhan 1985b, 387)

The maintenance of these time-tested agricultural practices within their historical, cultural, and ecological contexts "may be critical to continued food production; certain crops, though not necessarily high yielders, may be important in efficient utilization and conservation of chronically scarce resources such as water and nitrogen," and the crops may "cumulatively provide a different and perhaps superior set of nutritional resources" (Nabhan 1985b, 388). Additionally, O'odham crops are in situ reminders of their cultural and ecological identity.

The Tohono O'odham have been active cultivators in the co-evolution of their cultural and ecological communities. This dynamic interaction traditionally yielded the O'odham a practical subsistence while it also maintained agricultural practices that encouraged environmental stability, preservation of crop genetic varieties, toleration and protection of "volunteer" plants, and

> co-evolved microorganisms and weeds, as well as pests and beneficial insects. Amaranths, for instance, are hosts for insects that control corn-loving pests. Papago fields harbor nitrogen-fixing bacteria which naturally associate with tepary bean roots.... The plants have evolved the ability to grow quickly, root deeply, disperse heat loads, and provide nutritious seeds for those who harvest them. (Nabhan 1982, 47)

Traditional O'odham farmers grew several varieties of corn in small hills on recently flooded alluvial plains. According to Nabhan, the "genetic diversity of crops within any region may be related to a number of factors, such as: (1) the antiquity and continuity of agriculture; (2) ecological (habitat) diversity; (3) cultural diversity; and (4) introgression of crops with their wild or weedy relatives" (Nabhan 1985b, 392). To this list, I would also add the cultural knowledge of planting and harvesting rituals and ecological data as expressed and dramatized in their plant emergence narratives.

The desert farmers actively manipulated rain water by constructing earthworks, reservoirs, and detritus filters made from clusters of branches. Farmers also practiced burns and cleared stones and competitive vegetation from areas around crop plants. This labor-saving, arid-lands cultivation practice involves

> irrigation of crops by management of sporadic flashfloods in watercourses of arid lands, including: (A) true dry farming--crops watered only by rain hitting the field surface; (B) seepage agriculture--crops utilize underground seepage, capillary fringe and other subsurface moisture, as well as rainfall; (C) floodwater agriculture: (1) stormwater harvesting--on bajadas and other upland sites, without water being channeled into a watercourse; (2) flashflood accumulation, where stormwaters were concentrated in or near an intermittent watercourse (arroyo): (a) planting in the bottoms of intermittent watercourses, and controlling water by dams; (b) planting where intermittent watercourses spread into an alluvial fan, and controlling water by spreader dikes; and, (c) diverting floodwaters by weirs and ditches onto terraces or into storage basins; and, utilizing seasonal spillover on swollen streams to inundate otherwise dry floodplain fields. In addition to water and soil manipulations, native farmers modify floodplain ecosystem by (1) intentionally planting certain crops, and (2) selectively encouraging or discouraging "volunteer" plant populations, many of which held cultural value as supplemental foods, fibers, and medicines (Nabhan 1979, 245-251).

The plant emergence narratives contain both direct and indirect expressions and enactments of this system of cultivation. Additionally, the relationships between the

O'odham and the cultivation of corn or the gathering of cacti are placed in ritual contexts. Ceremonies include dance, song, speeches, and wine making to "pull down the clouds" and "sing up the corn."[2] The very act of planting is ritualistic. In turn, the narration of this cultivation lore is sacred as well. For a traditionally oral culture that "lived in the element of language," the expression and embodiment of these sacred relationships in narratives provides the means through which generations of people and plants evolve and persist (Momaday 1995). To the Tohono O'odham, these narratives create a sense of order for their world as repositories of historical, cultural, and ecological knowledge. For example, their desert existence is "premised on the fact that water [is] constantly in motion and that humans [can] endure only by fitting into this movement (Bowden 1992, 8).

The traditional cultivation system of the Tohono O'odham and the plant emergence narratives that dramatize its practice are successful in the desert environment. To this system, and other traditional agricultural practices, we must turn for knowledge of cultivation methods and cultural attitudes about plants in the wake of the incredible loss of cultural and biological diversity in our contemporary global communities. Decreasing numbers of O'odham farmers, declining quantity and quality of their harvests, diminishing seed-saving and seed-collecting skills, and weakened or stressed genetic compositions contribute to the loss of genetic diversity in crop plants, "rendering crops more vulnerable to epidemic attack--a situation that rarely occurs in unmodified traditional agroecosystems" (Altieri and Merrick 1988, 361-65). The decline in biotic diversity has involved "primarily the loss of distinct populations and parts of ecosystems, rather than the extinction of entire species or ecosystems. But the accumulated losses of populations and

ecosystem fragments could soon add up to the permanent disappearance of many species and communities" (Ehrlich 1987, 12). It is sobering to realize that, many plant, animal, and human communities are only one generation removed from extinction. This process also involves shifting perceptions of the human relationships with the land:

> If one wishes to examine the impact of groundwater development the O-otam offer a rare opportunity. Within the lifetime of humans still alive they have moved from a society perfectly adapted to aridity and absolutely independent of groundwater to a society independent of the desert and based on groundwater. For those interested in the peace with nature, the Papago offer abundant clues to the price of such a peace....What the wells did was help transform the Papago from a people who had lived off the land to a people who happened to live on the land. (Bowden 1992, 30; 7)

An essential component of the evolution of these perceptions is the stories that shape and order our cultural and natural worlds. They, too, are in danger of extinction. We do not know all that we have already lost and all we stand to lose in plant and human communities.[3]

A story of habitat destruction and found species illustrates the precarious nature of the crisis in biological diversity. In the 1970s, a wild relative of corn (Zea diploperennis) was discovered by a University of Guadalajara botany student, Rafael Guzman, on a plot of land in southwestern Mexico. The crop occupied no more than 25 acres and was scheduled for clearing by fire in the ensuing weeks to make way for road development (Fussell 1992, 81-2). In a time and landscape where half of all crop varieties native to the Americas have been lost, discoveries such as this one provide information about domestication of wild plant species and possible solutions to agricultural crises that have resulted due to loss of genetically distinct populations, dwindling genetic variety between

species, and monocropping. If this corn had been burned off the land to make way for development as planned, essential clues in the evolution of the most significant and adaptable crop species produced in the world would remain a mystery (Fussell 1992, 20). This species is also resistant to diseases and "unique among living forms of maize in possessing perennial growth" (Wilson 1992, 281).

Habitat destruction resulting from overpopulation and development is the primary reason for loss of biological diversity. Biological diversity involves the

> variety of organisms considered at all levels, from genetic variants belonging to the same species through arrays of genera, families, and still higher taxonomic levels; includes the variety of ecosystems, which comprise both the communities of organisms within particular habitats and the physical conditions under which they live. (Wilson 1988, 393)

Unfortunately, however, biodiversity is not valued primarily for aesthetic or moral reasons today, but rather for commodity potential, if its value is recognized at all. This reality becomes especially clear in the production of pharmaceuticals, where nearly a quarter of all prescribed medicines in the United States are derived from substances extracted from plants. Vinblastine and vincristine, two alkaloids derived from the Madagascan rosy periwinkle, are used in the treatment of Hodgkin's disease and acute lymphocytic leukemia (Wilson 1992, 283). Many pharmaceutical companies extract indigenous peoples' knowledge of medicinal plants and specimens of the plants themselves, mostly from the tropical rain forests, only to return to the United States and create synthetic versions for mass distribution. This practice ignores the intellectual property rights of the indigenous peoples, the sacred nature of their unwritten literatures which contain botanical lore, and the fate of the community's land-health.

Modern plant breeding techniques encourage genetically uniform agriculture for high yields and commodity value. This practice fails to see ecological and human evolution as a long-term process. Traditional mixed farming, together with specifically adapted species, produces reliable crops, although they may not produce the same yield. But, the high yield crops are vulnerable to pests, weather, and disease. In 1970, for example, the U.S. corn crop suffered a 15-percent reduction in yield and losses worth roughly $1 billion when a leaf fungus (Helminthosporium maydis) spread rapidly through the genetically uniform crop (Reid and Miller 1989, 59). "Although most traditional agroecosystems are undergoing some process of modernization or drastic modification, conservation of crop genetic resources can still be integrated with agricultural development, especially in regions where rural development projects preserve the vegetational diversity of traditional agroecosystems" and depend upon the indigenous culture's "rationale to utilize local resources and their intimate knowledge of the environment" (Altieri and Merrick 1988, 362).

Philosopher Bryan Norton cautions against placing economic value judgments on species diversity without consideration of the irreversibility of loss, and the "uncertainty" of having "identified and named only 15 % of the species on Earth," of which "we have rudimentary knowledge of the life characteristics of only a few" (1988, 202-3). Around 30,000 plant species have edible parts, and "throughout history a total of 7,000 kinds [of plants] have been grown or collected as food, but of the latter, only 20 species provide 90 percent of the world's food and just three--wheat, maize, and rice--supply more than half"

(Wilson 1992, 287-88). Norton is wary of examining biologically diverse plant communities only in terms of their "valuable" components:

> The value of biological diversity is more than the sum of its parts. Even if we could place a value on biological diversity represented by all species, we would only be part way to an answer to the question, "What is the value of biodiversity?" To answer that question, we would have to include also the genetic variation within species across populations and the variety of interrelationships in which species exists in different ecosystems. (Norton 1988, 210)

The wealth of botanical possibilities must be considered in the loss of biological diversity. In order to gage the value of biological diversity, an understanding of the significance of species regardless of utilitarian purpose must be acknowledged. In Faith in a Seed, Thoreau scholar Robert Richardson, Jr., discusses Thoreau's meticulous list making of fruits ripening and birds passing in the changing summer-to-fall sky (Dean 1993, 5). In this collection of careful natural history observations written in the early 1860s, Thoreau arrives at an awareness of the moral value of species diversity. Earlier, in Walden, Thoreau hears a "robin in the distance," and remarks, "If ever I could find the twig he sits upon! I mean he; I mean the twig," recognizing the significance of that transient moment, the aesthetic value of biological diversity (Bode 1947, 552). According to Leopold, this moral and aesthetic value, or "land-health," the maintaining of a balanced community and the non-utilitarian appreciation of species diversity, "is more important than surpluses or shortages in any particular land-product" (Flader and Callicot 1991, 303).

Maintenance of plant and animal genetic material in the wild and maintenance of wild and domesticated materials in gardens, orchards, seed collections, or laboratories are

essential to preserving cultural and genetic diversity. Along with these practices, we must learn to acknowledge and appreciate a variety of cultural worldviews as dramatized in traditional oral narratives and rituals, for "not only genetic information," but "culture as well as nature" are "inscribed in these seeds" and in these stories (Pollan 1991, 266). In situ conservation maintains genetic diversity and the evolutionary interactions that allow it to adapt to continually shifting environmental conditions (Reid and Miller 1989, 59). Relying only on in situ conservation measures, says Gary Nabhan, cofounder of Native Seeds/ SEARCH (Southwestern Endangered Aridland Resource Clearing House) in Tucson, Arizona,

> would be fighting the tide of acculturation, assimilation, and economic change that affect[s] virtually every human population on the planet. Today, it is inevitable that a sizable portion of any indigenous community will want to seek opportunities other than those traditionally open to them in their village, even if it means forsaking part or all of their agricultural heritage. "Freezing" an agroecosystem may not even be possible, given that cultural and environmental changes will continue regardless of intentional efforts to stop or slow them. Instead, it may be possible to combine selected in situ and ex situ conservation measures in a dynamic way. (Nabhan 1985b, 397)

Native Seeds/SEARCH is dedicated to ecological restoration of traditional seeds in the southwest. The organization collects native seeds of ancient food crops and the associated folklore, including stories and medicinal uses, and distributes the seeds in the community and through mail order seed catalogs to the larger public. The guiding premise of the organization is that culture and biology cannot be separated; seeds and cultures have co-evolved over a period of centuries and this reciprocal relationship greatly affects every aspect of life in the community. Native Seeds/SEARCH also offers bilingual field courses, health education programs, and youth education programs.

A similar program examining Native American agricultural folklore and traditional seeds is underway at Cornell University and in other seed banks. Agronomist and Iroquois scholar Jane Mt. Pleasant acknowledges that we are faced with a crisis in plant biological diversity and agriculture. Mt. Pleasant is conducting research on Iroquois farming techniques, such as mound planting, "interplanting (multi-cropping)," and the concept of "productivity over time," rather than short-term production that relies on intensive land manipulation and fertilizer use (Wolkomir 1995, 99-106). Shared agricultural techniques found in southwestern Tohono O'odham and mid-Atlantic Iroquois folklore, such as mound planting and children scaring away birds by running through the fields, are intriguing. The Heritage Seed Program in eastern Canada and the Seeds Savers Exchange are other seed warehouses currently preserving traditional seeds. Seeds Savers Exchange stores the "Cherokee Trail of Tears bean" whose ancestors, botanical and human, were carried by Cherokee families on forced walks from their homes in the southern Appalachians to reservation lands in Oklahoma in 1838-39.

How will the preservation of these landraces and the culturally specific knowledge about plants contained in oral narratives benefit the Tohono O'odham today? The answer is found in attempts to restore cultural and agricultural diversity through ecological restoration, "the study of the structure and regeneration of plant and animal communities, aimed at the enlargement or restitution of threatened ecosystems" (Wilson 1992, 405). The seeds for the Society for Ecological Restoration were planted by Leopold in a 1934 speech at the dedication of the longest running restoration program, the University of Wisconsin at Madison Arboretum. The goals of the society, founded in 1987, involve an

awareness of connections between nature and culture and a willingness to see restoration as a transformative human act wherein interactions with nature occur on a realistic plane. Although restoration ecology faces many challenges, such as habitat fragmentation and the uncertainty of the return of animal species to an artificially established plant community, the effort is crucial to the biodiversity crisis. The success of restoration involves the re-establishment of communities that meet such criteria as self-sustaining capacity, resistance to exotic species, and reciprocal nutrient production. In The Diversity of Life, Wilson suggests that "merely the attempt to solve the biodiversity crisis offers great benefits never before enjoyed, for to save species is to study them closely" (Wilson 1992, 282).

In this close study, we need to walk old paths again, listen to old words, and look around with acute vision. Leopold suggested that the "invention of a harmonious relationship between [humans] and the land is a more exacting task than the invention of machines... its accomplishment impossible without a visual knowledge of that land's history" (Flader and Callicot 1991, 210). And Thoreau suggested that we spend a day contemplating the world from our front porch in an effort to know nature well and understand our reciprocal responsibility to the places we inhabit. A Sand County Almanac illustrates Leopold's personal attempt at restoration of place and the transformation of a singular human vision into an ecologically conscious mind in the landscape of a biologically diverse community, while Thoreau's vision is expressed in the pages of Walden, where he explores the

> indescribable innocence and beneficence of Nature--of sun and wind and rain, of summer and winter--such health, such cheer, they afford forever! and such sympathy have they ever with our race, that all Nature would be affected, and the sun's brightness fade, and the winds would sigh humanely, and the clouds rain

> tears, and the woods shed their leaves and put on mourning in midsummer, if any man should ever for a just cause grieve. Shall I not have intelligence with the earth? Am I not partly leaves and vegetable mold myself? (Bode 1947, 389).

And the O'odham vision, one that speaks subtly, yet with profound awareness and conviction, of the need for reciprocal relationships between human and botanical communities, "allows us to hear the world new again" (Hogan 1995, 51).

NOTES

[1] Chico Santos and his fields are a fictional composite based on my research and personal experiences in the desert southwest. The corn songs mentioned here come from Underhill's Singing for Power (1993) and The Autobiography of a Papago Woman (1985).

[2] From the Hayden manuscript:

You look in the fields
And you will see corn coming out
The leaves are swaying back and forth
Made by the wind.

You look in the fields
And you see that the pumpkin is coming out
The leaves of the pumpkin are like the clouds
And the decoration on the pumpkin is like decorated clouds.
(Hayden 1935, 10-11)

Another song:

The sunset is red
And the seeds are gathered together
Because in the morning
They will go and plant the seeds again.
This corn has tassels on top
And it is swaying back and forth
And singing.

Evening red
Inside is singing
Corn tassels plume
Plume have in his hand
Pointing this way and that way
And singing.
(Hayden 1935, 11)

From Underhill's Singing for Power
Songs to Pull Down the Clouds:

The sun is setting,
The mountain shadow
Covers me and stretches on.
In front of the great mountain
Darkness comes forth
And speedily it moves.

Corn is forming,
Corn is forming.
Beside it, squash is forming.
In the yellow flowers
The flies sing.
(Underhill 1993, 26)

Songs to Sing up the Corn:

Evening is falling.
Pleasantly sounding
Will reverberate
Our songs.

The corn comes up;
It comes up green;
Here upon our fields
White tassels unfold.

The corn comes up;
It comes up green;
Here upon our fields
Green leaves blow in the breeze.

Blue evening falls,
Blue evening falls;
Near by, in every direction,
It sets the corn tassels trembling.
(Underhill 1993, 44)

[3] For the purposes of this discussion, I will consider the loss of biological diversity in plant communities, although I recognize and feel strongly about the loss of species diversity in animal communities as well.

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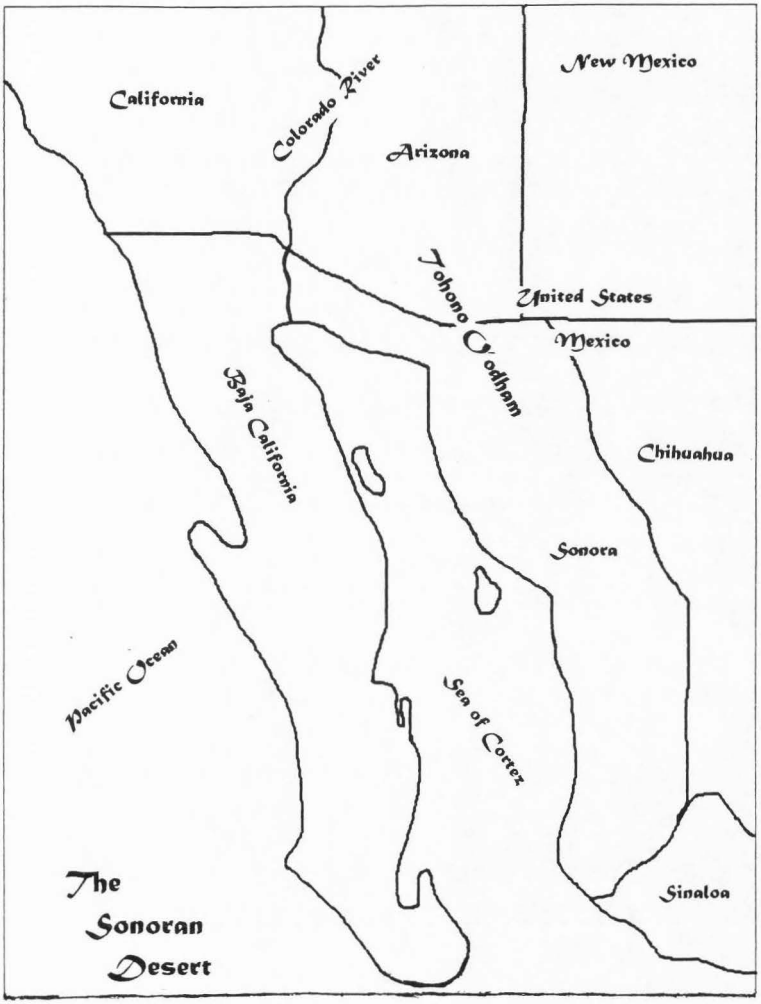
APPENDICES

APPENDIX A. MAP OF SONORAN DESERT


California
Colorado River
Arizona
New Mexico
Tohono O'odham
United States
Mexico
Baja California
Chihuahua
Sonora
Pacific Ocean
Sea of Cortez
Sinaloa
The Sonoran Desert

APPENDIX B. SONORAN DESERT PLANT INDEX

Sonoran Desert Plant Index

Organ Pipe Cactus	Pale Face	Pale Trumpets
Paperflower	Pencil Cholla	Prickly Pear Cactus
Puncture Vine	Purple Groundcherry	Purple Mar
Rain Lily	Rainbow Cactus	Ratany
Rattlesnake Weed	Rough Mendora	Saguaro
Scalloped Phacelia	Sentia	Snakehead
Southwestern Ringstem	Southwestern Thorn	Apple
Spectacle Pod	Spike Broomrape	Spotted Langloisia
Spreading Fleabane	Sunray	Sweetbush
Sweet-scented	Heliotrope	Tahoka Daisy
Teddybear Cholla	Tobacco Weed	Trailing Four O'clock
Tree Tobacco	Trixis	Twinleaf
Western Peppergrass	Whispering Bells	White-bracted Stick
Whitethorn Acacia	Leaf	Maguey
White Horsenettle	White Milkweed	Wooly Daisy
Yellow Bee Plant	Yellow Head	Yellow Peppergrass
Yellow Spiny Daisy	Yellow Twining	Snapdragon

Compiled from: MacMahon, James A. 1992. The Audubon Society nature guides: Deserts. 7th ed. New York: Oxford University Press.

APPENDIX C. TOHONO O'ODHAM LANGUAGE PRONUNCIATION KEY

Tohono O'odham Language Pronunciation Key

The location of stress within a words and the glottal stop are important linguistic considerations. The stress is located on the first syllable. The sound of vowels can be drawn out to a long sound or cut off as a short sound. Long vowels are marked by colons (:) following the letter. Short vowels are represented by a breve ( ) over the letter. Long vowels can appear in any syllable of a word; short vowels, which are almost always whispered, usually occur at the end of the word.

a	like the a in father
b	like the b in big
c	like the ch in chip
d	like the th in this
d	like the t with a glottal stop in but
e	like the u in hum
g	like the g in go
h	like the h in hat
i	like the i in machine
j	like the j in job
k	like the k in kiss
l	no similar sound in English--the closest is the dd in ladder; also similar to the r in Spanish
m	like the m in miss
n	like the n in no
n	like the ny in canyon
n	like the ng in finger
o	like the a in all
p	like the p in pot
s	like the s in see
s	like the sh in ship
t	like the t in top
u	like the u in brute
w	like the w in win
y	like the y in yes

Source: Zepeda, Ofelia. 1994. A Papago grammar. 3d ed. Tucson: University of Arizona Press.

APPENDIX D. TOHONO O'ODHAM PLANT EMERGENCE NARRATIVES

Letter Granting Copyright Permission

4239 Bellevue Avenue
Tucson, Arizona 85712-4511

January 13, 1996

Jennifer Hughes
P.O.Box 4390
Logan, Utah 84323-4390

Dear Miss Hughes:

Yes, I recall your telephonic visit with me last fall, and had wondered whether or no you would follow up on it. Glad you're doing so, and welcome.

As far as I'm concerned, you are free to quote with credit to the manuscript of the Pima Creation Myth. That's what the script is in the archives for, to use. Took 60 years, almost, before anyone took advantage of it!

I mys elf took particular delight in the songs pertaining to planting and growth of the corn - I trust you've read Russell's translations of them? I hope so.

My chief interest, however, was in the rendering of the history of the rising up and destruction of the Hohokam, and its correlation with the archeological record. Contrary to archeological belief of the time, the story is remarkablymaccurate - after all,500 years is not long to remember details. Reviewers of the Chronicle, however, have overlooked that facet, and show major interest in the religious aspects. Takes all kinds.

Best of luck, and may I have the privilege of seeing your thesis? After its publication, of course!

Julian D. Hayden

Cultivated Plant Emergence Stories

A Man Raises His Daughter Well

As time passed, the population increased. Medicine men and wise men appeared. Many of them could do things Elder Brother did.

In one large village a wise man lived with his daughter. From her early childhood he told her everything that makes a woman desirable, and what a real man is like. So she grew up with this knowledge and was a fine beautiful girl.

Young men came from all over wanting to marry her. She didn't like them, but let them come. Some were showing off their good looks, some that they were powerful medicine men, some that they were manly. But each one failed in some way for the girl, so she kept waiting for the right man. All through the land it was told that the woman was ready for marriage but wouldn't marry anyone.

Corn Comes Courting the Girl

At that time Corn was not around. He lived far to the east where he planted corn and sang for it. Because he sang for it, it came up and ripened well. He heard about the woman who was ready for marriage but wouldn't marry anyone. So he looked himself over and said, "I'll go and marry the woman." He considered himself a handsome man, tall, slender, and bearded, as well as being wise. One day he left and walked along singing this song:

Over there beneath the sunrise,
The corner of the earth is my garden.
In it flowery songs go forth in every direction.
Go along, corn, little corn.
Over there beneath the sunset a woman sits,
Speaking bravely.
I'll laugh at her and no doubt marry her.

Go along, little corn.

How long he wandered, no one knows. When he was tired he sat down and thought about his future, feeling like he should go home. "How do I know she will like me. I would be hurt if she didn't." Then he would look himself over again and think, "Who can be as handsome as I am? Who can know as much as I do?" Then his heart would fall back into place and he would get up and go on.

Later on, he came to a mountain. He climbed the highest peak and sat there singing. As the sun was about to set, he looked toward the west. Suddenly smoke appeared at the foot of the mountain, circling and then rising straight up. When he saw it, he said, "If it comes toward me, I'll know from that that I'll find what I'm looking for, but if it goes the other way, I'll know that what I'm looking for isn't there."

As he watched the smoke, it rose very slowly. Just as it reached the mountain top, it turned toward him, he started right down. Even though the mountain was high and steep and rough, he forgot he was tired and went bouncing down the steep descent. When he arrived, he saw some women gathering rocks and throwing them in the fire. One was an older woman, and one a beautiful young girl.

Corn sat down when he reached them and said, "Where do you live that you come here to get food for yourselves?"

The older woman said, "Our house is not far from here. Go over there and talk with the old men and tell about your fine land and happy home.

Then Corn said, "I live to the east. I heard there was something interesting here and I've come to see it."

"There really is nothing exciting here. The people just talk like that. The old man is sitting over there. Go and see. He will talk with you," said the old woman.

Then Corn said, "I don't know the people here and will certainly not go around their houses all night."

"Wait for us, we'll finish soon and you can go with us. Nothing will happen. That's the way people do. They come and stay with us for awhile and then leave again."

Having said this, she took the basket and began scooping up the cactus buds in it and poured them in the cooking hole in the ground. Then she said, "I will put you here and you will cook well. A young man will come from somewhere and eat you and settle here. Maybe I'll find something to give him so he'll be happy here and kill deer for me and save me when danger arises."

After saying this she turned around, and Corn pulled out some of his whiskers and threw them on the cactus buds. The old woman went across and poured more cactus buds in the cooking hole. She poured four basketfuls in. And Corn threw his whiskers on the cactus buds four times. The girl just sat there and watched Corn throw something on the cactus buds but said nothing.

When they finished their cooking they went home, and Corn went with them. When they were nearly there, Corn said, "I think your cooking must do well since you have talked to it and buried it. Whatever comes out, think nothing of it. Just take it. It will be good food just like the food at your house." The old woman didn't understand what he said, but said nothing, thinking that she would see in the morning.

They arrived at their house and right away the old man set out his tobacco and said, "Talk to us and tell us about your beautiful country and home. That's interesting to us old men who never go anywhere and don't know the people around us."

So Corn sat down and told of himself, how he lived far away and had heard there was something interesting here and had come to see it. Now he would rest and some day, when he was rested, he would talk it over with them. When he had said that, he laid down and went to sleep.

In the morning Corn went off somewhere, and the women went to get their cooking in the ground. When they arrived and uncovered it, they looked and it wasn't cactus buds, but something strange. They didn't know what it was or how it should be fixed to be eaten. They just took it to their house and the old woman said, "Look at our food and tell us how it is eaten."

Corn Reveals His Powers

Right away Corn came and took one and shucked it and cleaned off the whiskers saying, "This is eaten like this at my home." Then the people ate the corn and liked it because it really was good to eat. Corn stayed four days and during the day he looked for good land to plant. He found it and said, "Tell all your relatives to come here and I will tell them where to plant this food and what to sing to it so it will come up and ripen well."

Right away the old man went out and stood on top of his house and announced the invitation for them to gather there and hear something. And the people came.

Then Corn said, "Here we will sing. And when morning comes we will go and see. I planted something over there. Maybe it will do well and come up. You will see it

and know that it will be four days from now that my planting will ripen. Then you will get it and prepare seed. When another year comes and it is about to rain, you will look for good ground. At the arroyo mouths the land is moist and soft. Plant this food there. Whoever learns many of these songs of mine and sings well for his crops, they will come up and ripen well. Whoever does not learn many of these songs of mine and does not sing them to his crops, not much of his crop will come up. Or if it comes, it will just dry up."

After saying this he started his song. They sang all night until dawn. At dawn they went to the arroyo mouth and were surprised to see something growing there. Then they went home. When the sun went down they sang again all night, and in the morning they visited their crops again. They were surprised to see they had grown so tall. When they had looked at them, they went home again. The third song came. When they finished, they again went out and looked, and were surprised to see they had borne children. Four times they sang to the corn. Again they visited their crops and saw the corn had ripened. Corn said, "Take the corn and prepare seed. When a year passes you will plant it and sing to it. Then it will come up and ripen well. Whoever doesn't sing well to his crops, they won't come up and ripen well."

Did They Give Corn the Girl?

In this way he showed them his knowledge, thinking, "maybe the woman will help me. I'll appeal to her first. If she helps me I'll surely get the girl."

So he did, but the woman didn't agree. She said, "The old man will decide everything for you." So he went to the old man and said, "I am a dweller of the east. There I heard that you lived here and had a daughter, so I have come to ask for your

daughter in marriage. She can go with me to my home. The land is good there and there is plenty to eat so your daughter will not get hungry. She will be happy and live with me. That's all. I have shown you my wisdom, and if it seems good to you, give me your daughter."

Then the old man said, "The young men are the same here, doing something wonderful and thinking that in that way they can easily get a woman. There are many things a young man follows to reach true manhood. Whoever wants this will endure hunger, thirst, sleeplessness, and will see many dangerous things before he calls himself a man. When he goes to ask for a woman, he won't be hanging around with the woman or sleeping close by them, or wandering about their homes when he has not yet even said what he wants.

"Now that you have given us this food of yours, nothing's going to happen. That's what the young men do, come here and stay with us for a while, and when they have shown us their skills then they go somewhere else."

The old man had finished speaking. When Corn heard this, he was ashamed and went back to his home.

The People Plant Corn

After that, a year passed. Those who were alert and industrious had already taken the good land. Coyote, however, had almost eaten up his seed. Being lazy and sleepy-headed, he had not yet looked for good land.

Suddenly it rained. The people ran off in every direction and planted on their land. Then Coyote went running with the seed in his hand, to plant it somewhere. But there was always someone to say, "Ha! Uncle! Get away! I've already taken the land there."

Coyote kept running again and never did find good land. He got tired and angry and said, "I'm going to plant here. If it wants to come up it'll come up. What will happen? I never planted anything before and am still alive. Maybe I'll live, even if my crop doesn't come up." As he said this he was planting along the banks of the arroyo.

When the corn was first planted and sung to, Coyote kept sleeping, so he didn't learn a single corn song. So as he planted his seed he said, "I'll just compose one song. It'll be just as beautiful as Corn's songs."

He was wandering along the banks of the arroyo, planting and singing:

Make mush in the morning!
Make mush in the morning!
Make mush in the morning!
Hih, jiwia, ahhina!
Grind the corn fine and make mush!
Make mush in the morning!
Hih, jiwia, ahhina!
Hih, jiwia ahhina!

Corn is what Coyote planted, but it wasn't corn songs that he sang to his crops. So it was not corn that came up. What came up is what now comes up along the arroyo banks and is called "Coyote tobacco" [Ban wiwga].

Coyote Scatters Saguaro Seed

At that time Turtle lived with his friend by the ocean shore. He had saguaro cactus and when it ripened he would gather the fruit, dry it with the seeds in it and store it in his house. That's the seed that's scattered under the saguaro.

Then Turtle would pick them up and go to the ocean and throw them into the water so the seeds wouldn't grow. This way they were the only ones who ate the fruit.

So Coyote was sent to see if he could get some saguaro seed so the people could also plant it.

Coyote went, thinking of what he could do to deceive Turtle when he met him. He went to the ocean and was wandering around on the shore when he saw him. Turtle was coming down from the mountain, so Coyote went to meet him.

When they met, Coyote said, "Where are you going?"

Turtle said, "I'm going to the water to swim."

Then Coyote said, "What's that in your hand?"

Turtle answered, "It's a strange thing and is very dangerous for people. I'm going now to put it under the water. That way it will never come out on the land."

Coyote said, "If it is dangerous, why do you put it under the water? Don't you know that the water comes and goes, and will bring it out? I'll tell you what we will do to this dangerous thing so that it will never come out."

But Turtle said, "If we bury it in the earth, it will sprout roots and come up and ripen and scatter its seed. From there it will multiply.

Then Coyote said, "Oh so it's some kind of seed. Let me see what it's like."

But Turtle said, "If you try to see it, it will make you sick."

"It won't really make me sick. Don't you know that I am also a medicine man? That's why nothing ever makes me sick."

So Turtle held out his hand, and just opened it a little bit.

Coyote said, "Wait, wait! I want to see it real close. It's not clear from here." When he said this, he crept up on Turtle.

When he got up to him he said, "There! Now we'll see what it is." And just as Turtle was opening his hand, he hit it from below, and the seed was scattered wherever there are saguaro growing now.

When Coyote had done this he ran back, telling everyone as he ran, "Even though I did not get the seed, I scattered it everywhere on this land. Maybe when the Saguaro comes up and ripens, you will gather it and eat it."

This is why Coyote is good for something for people. Then they gave him a wife who was beautiful, and Coyote married her, and said, "From now on, I will not just wander around. Whoever wants to see me for any reason will go over there looking for me. I will be living in the east where I have already spoken for land."

So Coyote went to the east with his wife. And, because he was a survivor, and saw many things and suffered much and knew the earth everywhere from the beginning until now, he was a very wise person (1973, 79-84).

Source: Saxton, Dean, and Lucille Saxton. 1973. O'othham hoho'ok a'agitha: Legends and lore of the Papago and Pima Indians. Tucson: University of Arizona Press.

The Story of Corn and Tobacco

There was a powerful mahkai who had a daughter, who tho old enuf, was unmarried, and who grew tired of her single life and asked her father to bury her, saying, we will see then if the men will care for me.

And from her grave grew the plant tobacco, and her father took it and smoked it and when the people who were gathered together smelled it they wondered what it was, and sent Toehahvs to find out.

But, although the tobacco still grew, the woman came to life again and came out of her grave back to her home. And one day she played gainskoot with Corn, and Corn beat her, and won all she had. But she gave some little things she did not care for to Corn, and the rest of her debt she did not pay and they quarreled.

She told Corn to go away, saying: "Nobody cares for you, now, but they care a great deal for me, and the doctors use me to make rain, and when they have moistened the ground is the only time you can come out."

And the Corn said: "You don't know how much the people like me; the old as well as the young eat me, and I don't think there is a person that does not like me" and Corn told Tobacco to go away herself.

There was people there who heard them quarreling, and though Tobacco staid on, whenever she would be in a house and hear people laughing she would think they were laughing at her. And she became very sad, and one day sank down in her house and went westward and came to a house there.

And the person who lived there told her where to sleep, saying, "Many people stop here, and that is where they sleep."

But she said: I am traveling, and no one knows where I am, and if anyone follows me, and comes here, you tell them that you saw me, that I left very early in the morning and you do not know which way I went." And she told him that she did not know herself which way she would go, and at night, when she went to bed, she brought a strong wind, and when she wanted to leave she sank down and went westward, and the wind blew away all her tracks.

And she came to the Mohaves and lived there in a high mountain, Chief Toe-ahk, or tall mountain, which has a cliff very hard to climb, but Tobacco stood up there.

And after Tobacco had gone, Corn remained, but when corn planting time came none was planted, because there was no rain. And so it went on--all summer, and people began to say: "It is so, when Tobacco was here, we had plenty of rain, and now we have not any, and she must have had wonderful power."

And the people scolded Corn for sending Tobacco away, and told him to go away himself, and then they sent for Tobacco to come back, that they might have rain again.

And Corn left, going toward the east, singing all the way, taking Pumpkin with him, who was singing too, saying they were going where there as plenty of moisture.

And the next year there was no water, and a powerful doctor, Gee-hee-sop, took the Doctor's Stone of Light, and the Doctor's Square Stone, and some soft feathers, and eagle's-tail feathers, and went to where Tobacco lived, asking her to come back, saying "We are all suffering for water, and we know you have power to make it rain, And every seed buried in the ground is begging for water, and likely to be burned up, and every tree is suffering, and I want you to come."

Then Tobacco said: "What has become of Corn? He is still with you, and corn is what you ought to eat, and everybody likes it, but nobody cares for me, except perhaps some old man who likes to smoke me, and I do not want to go back, and I am not going!"

But Gee-hee-sop said: "Corn is not there now, he has gone away, and we do not know where he is." And again he asked Tobacco to come back but she refused, but gave him four balls of tobacco seed and said to him: "Take these home with you, and take the dirt of the tobacco-worm, and roll it up, and put it in a cane-tube and smoke it all around, and you will have rain, and then plant the seed, and in four days it will come up; and when you get the leaves, smoke them, and call on the winds, and you will have clouds and plenty of rain."

So Gee-hee-sop went home with the seed balls, and tobacco-worm dirt, and did as Tobacco had told him; and the smoking of the dirt brought rain, and the seeds were planted in a secret place, and in four days came up, and grew for awhile, but finally were about to die for want of rain.

Then Gee-hee-sop got some of the leaves and smoked them, and the wind blew, and rain came, and the plants revived and grew till they were ripe. When the tobacco was ripe Gee-hee-sop gathered a lot of the leaves and filled with them one of the gourd-like nests which the woodpecker, Kohdaht, makes in the har-san, or giant cactus, and then took a few of these and put them in a cane-tube pipe, or watch-kee, and went to where the people gathered in the evening.

And the doctor who was the father of Tobacco said: "What is this I smell? there is something new here!"

And one said, "Perhaps it is some greens that I ate today that you smell," and he breathed toward him.

But the mahkai said, "That is not it."

And the others breathed toward him, nut he could not smell it.

Then Gee-hee-sop rolled a coal toward himself, and lit up his pipe, and the doctor said: "This is what I smelled!"

And Gee-hee-sop, after smoking a few whiffs, passed the pipe around to the others, and all smoked it, and when it came back to him he stuck it in the ground.

And the next night he came with a new pipe to the place of meeting, but the father of Tobacco said: "Last night I had a smoke, but I did not feel good after it." And all others said: "why we smoked and enjoyed it."

But the man who had eaten the greens kah-tee-kum, the day before, said: "He does not mean that he did not enjoy the smoke, but something else troubled him after it, and I think it was that when we passed the pipe around we did not say "My relatives," "mother," or "cousin," or whatever it was, but passed it quietly without using any names."

And Tobacco's father said: "Yes, that is what I mean." (And from that time on all the Pima smoked that way when they came together, using a cane-tube pipe, or making a long cigarette of corn-husk and tobacco, and passing it around among relatives.) So Gee-hee-sop lit his pipe and passed it around in the way to satisfy the doctor.

And the people saved the seeds of that tobacco, and to day it is all over the land.

And the Corn and the Pumpkin had gone east, and for many years they lived there, and the people they had left had no corn and no pumpkins, but after a while they returned of themselves, and came first to the mountain, Tahtkum, and lived there awhile, and then crossed the river and lived near Blackwater, at the place called Toeahk-Comalk, or White Thin mountain, and from there went and lived awhile at Gahkotekih or, as it is now called Superstition Mountain.

While they lived at Gahkotekih there was a women living near there at a place called kawt-kee oy-ee-duck who, with her younger brother, went to Gah to gather and roast the white cactus, and while they were doing the Corn saw them from the mountain and came down.

And the boy saw him and said: "I think that is my uncle coming," but his sister said: "It cannot be, for he is far away. If he were here the people would not be starving as now."

But the boy was right, it was his uncle, and Corn came to them and staid with them while the cactus was baking. And after awhile, as he sat aside, he would shoot and arrow up in the air, and it would fall whirling where the cooking was, and he would go and pick it up. Finally he said to the woman: "Would you not better uncover the corn and see if it is cooked yet?" And she said: "It is not corn, it is cactus."

Again, after a while he said: "Would you not better uncover the pumpkin and see if it is done?"

And she replied: "It is not pumpkin, we are baking, it is cactus."

But finally he said "Well, uncover it anyway," and she uncovered it, and there were corn and pumpkin there, together, all nicely mixed and cooked and she sat staring at it, and he told her to uncover it more, and she did so and ate some of it. And then he asked her to send the little boy ahead again. But first the little boy was to go to the doctor who was the father of Tobacco, and see of he and his daughter wanted Corn to return. If they did he would come, and if they did not he would stay away. And he wanted the boy to come right back and tell what answer he got.

So the little boy went and took some corn with him to the doctor and said: "Corn sent me and he wants your daughter, and he wants to know if you want him. If you do he will return, but if you do not, he will turn back again. And he wants me to bring him word what you say."

And the mahkai said "I have nothing to say against him. I guess he knows the people want corn. Go and tell him to come."

And Corn said: "Go back to the doctor and tell him to make a little kee, as quick as he can, and to get the people to help him, and to cover it with mats instead of bushes, and to let Tobacco go there and stay there till I come.

And tell all the people to sweep their houses, and around their houses, and if anything in their houses is broken, such as pots, Vahs-shroms, to turn them right side up. For I am coming back openly; there will be no secret about it."

So the little boy went back and told the doctor all that Corn had told him to say and the doctor and the people built the kee, and Tobacco went there, and the people swept their houses and around them as they were told.

And before sunset the women came home with the corn and pumpkin she had cooked at the mountain, but Corn staid out till it was evening.

And when evening came there was a black cloud where corn stood, and soon it began to rain corn and every little while a big pumpkin would come down, bump. And it rained corn and pumpkin all night, while corn and his bride were in their kee, and in the morning the people went out and gathered up the corn from the swept place around their houses.

And so Corn and Pumpkin came back again.

The people gathered up all the corn around their houses, and all their vessels, even their broken ones, which they had turned up, were full, and their houses were soon packed full of corn and pumpkin. So Corn lived three with his wife, and after awhile Tobacco had a baby, and it was a little crooked-necked pumpkin, such as the Pimas call a dog-pumpkin.

And when the child had grown a little, one day its father and mother went out to work in the garden and they out the little pumpkin baby behind a mat leaning against the wall. And some children, coming in, found it there, and began to play with it for a doll, carrying it on their backs as they do their dolls. And finally they dropped it and broke its neck.

And when Corn came back and found his baby was broken he was angry, and left his wife, and went east again, and staid there awhile, and then bethought him of his pets, the blackbirds, which he had left behind, and came back to his wife again.

But after awhile he again went east, taking his pets with him, scattering grains of corn so that the black birds would follow him.

Corn made this speech while he was in the kee with Tobacco:

In the East there is the Tonedum Vahahkkee, the Vahahkkee of Light, where lives the great doctor, the king fisher.

And I came to Bives-Chool, the king fisher, and asked him for power, and he heard me asking and flew up on his kee, and looked toward the West, and breathed the light four times, and flew and breathed again four times, and so on - flying four times and breathing after each flight four times and then he sat over a place in the ground that was cut open.

And in the West there was a Bluebird, and when I asked him for power he flew up on his kee, and breathed four times, and them flew toward the East, and he and Bveschool met a the middle of the earth.

And Biveschool asked the Bluebird to do some great thing to show his power, and the Bluebird took the blue grains of corn from his breast and then planted them, and they grew up into beautiful tall corn, so tall its tops touched the sky and its leaves bowed over and scratched the ground in the wind.

And Biveschool took white seeds from his breast, and planted them, and they came up, and were beautiful to be seen, and came to bear fruit that lay one after another on the vine - these were pumpkins.

And the beautiful boys ran around among these plants, and learned to shout and learned to whistle, and the beautiful girls ran among these plants and learned to whistle.

And the relatives heard of these good years, and the plenty to eat, and there came a relative leading her child by the hand, who said: "We will go right on, for our relatives must have plenty to eat, and we shall not always suffer with hunger.

So these came, but did not eat it all but returned.

So my relatives, think of this, that we shall not suffer with hunger always."

And Corn made another speech at that time to Tobacco's father:

"Doctor! Doctor! have you seen that this earth that you have made is burning! The mountains are crumbling, and all kinds of trees are burning down.

And the people over the land which you have made run around, and have forgotten how to shout, and have forgotten how to walk, since the ground is so hot and burning.

And the birds which you have made have forgotten how to fly, and have forgotten how to sing.

And when you found this out you held up the long pinion feathers, mah-cheev-a-duck, toward the East, and there came the long clouds one after the other.

And there on those clouds there was low thunderings, and they spread over the earth, and watered all the plants, and the roots of all the trees; and everything was different from what it had been.

Every low place and every valley was crooked, but the force of the waters straightened them out, and there was driftwood on all the shores: and after it was over every low place and every valley had foam in its mouth.

And in the mouth stood the Doctor, and took the grains from his breast, and planted them, and the corn grew and was beautiful. And he went on further, to another

low valley, and planted other seeds, and the pumpkin grew and was beautiful. And its vine to the West was black and zigzag in form, and to the South was blue and zigzag in form, and to the East was white and zigzag in form, and to the North was yellow and zigzag in form.

So everything came up, and there was plenty to eat, and the people gathered it up, and the young boys and girls ate and were happy, and the old men and the old women are and lengthened even their few days.

So think of this, my relatives, and know that we are not to suffer with hunger always."

And the Dog-Pumpkin baby lay there broken, after Corn went away, but after awhile sank down and went to Gahkotekih, and grew up there, and became the Hansen or Giant Cactus.

And the mother and grandfather could not find the Dog-Pumpkin Baby, and called the people together, and Toehahvs was asked to find it, and he smelled around where it had been, and went around in circles.

And he came to where the Giant Cactus was and thought it was the baby, but was not sure, and so came back and told them he could not find it. And they wanted Nooee to go, and Toehahvs said to Nooee: "I did see something, but I was not quite sure, but I want you to examine that Giant Cactus." So Nooee flew around and around and examined the Giant Cactus and came back, and when the people questioned him said: "I have found it and it is already full-grown, and I tell you I think something good will happen to us because of it."

And when the Cactus had fruit the people gathered it, and made tis-win and took the seeds and spread them out in the sun.

And the Badger stole these seeds, and when the people knew it they sent Toehahvs after the their.

And Toehahvs went and saw Badger ahead of him in the road, and saw him go out and around and come into the road again and come toward him.

And when they met, Toehahvs asked him what he and in his hand. And Badger said "I have something, but I'm not going to show you !"

Then Toehahvs said: "If you'll only just open your hand, so I can see, I'll be satisfied." And Badger opened his hand, and Toehahvs hit it a slap from below, and knocked the seeds all around, and that is why the giant cactus is now so scattered (1911, 217-230).

Source: Lloyd, J. William. 1911. Aw-aw-tam Indian Nights: Being myths and legends of the Pimas of Arizona. Westfield, NJ: The Lloyd Group.

The Smith/ Allison Text

So the next thing, Siuuhu rubbed his breast with his hands and brought our two corn seeds and put them in the ground. So Siuuhu sings two more songs.

You look in the fields
And you will see corn coming out
The leaves are swaying back and forth
Made by the wind.

You look in the fields
And you see that the pumpkin is coming out
The leaves of the pumpkin are like the clouds
And the decoration on the pumpkin is like decorated clouds

(This song means, when the wind blows, it is going to bring out clouds, the clouds will bring rain, and make the pumpkin grow and make it ripe.

So that's for man's use, the corn and the pumpkin.

So these two seeds that Siuuhu put into the ground is demonstration how a man and woman should be tied into marriage together and bring out children, to increase and multiply.)

Siuuhu's second song:

The corn song, meaning, when the corn is ripe they would use some of the corn, and keep some of the seed for next planting season, and the same with the pumpkin.

(Hai lo Mya'an, a repeated line in these two songs, ending the verses, and meaning that the proper words had been forgotten.)

So Siuuhu decided that he would make many different kinds of corn, and he explains to the people and sings a song.

The sunset is red
And the seeds are gathered together
The will go and plant the seeds again.
This corn has tassels on the top
And it is swaying back and forth
And singing
And the blossoms of the pumpkin
Are swaying back and forth
And singing.

Literal translation:
Evening red
Inside is singing
Corn tassels plume
Plume have in his hand
Pointing this way and that way
And singing.

So, the next morning they planted this corn, and the pumpkin, and saw it turned out to be good. (So this next song is called corn song.)

The next thing that Siuuhu made was the little Indian white bean.

So the next thing that he made another kind of bean, that they used to call speckled beans (you don't see them anymore now).

Corn song:

He e yana heo(lt) vava heo(lt)
Is singing
Farms in is singing
This little white beans and the corn are singing
Then the speckled bean and the pumpkin are singing
together.
Vava heo(lt) is singing
Haich e ya.
Ya ee na.

Hay ee yana heo(lt)
Water breeze comes out far away
The breeze runs a long ways
It reaches far away
The corn tassels it breaks to pieces
Haych ee ys ya ee na.

The water clouds come out far away
It came from far away
And reached, pumpkin leaves
It breaks to pieces
Haych ee ya ya ee na.

(The two songs that we sang are called corn songs, and the other two that we just sang are called "The kind of song that goes with rubbing a stick across a basket, basket rubbing song.)

So that is four things that Siuuhu made, and that is all, because the number four is an important number, and everything is made four times, and that makes four numbers, and so everything is finished.

Then the black-eyed peas were made but didn't have any song.

The next thing that was made was some kind of food, called koff. That was also raised on a farm. (Juan said he never saw what it looked like.)

All these things were made that the people might use for food.

So one was given this corn, and was called the corn man.

So the next thing that was made was tobacco (coyote tobacco) that is called in Pima green tobacco, and it was only for the old people.

So this is called the tobacco man.

So all these things were made and the people used this corn and the pumpkin, and they smoked the tobacco.

So everything was completed, but there was no cruelty for the men.

And there were no lies at that time.

And there was no pride at that time.

And there was no murder at that time.

All the people were loving each other, and were doing their work together and helping one another.

So at a certain time the corn and tobacco met together, and the people decided the corn man and tobacco man should play a game of "gins." So the corn and the tobacco believed what the people said, and so they started to play the game. (It was not their wish to play this game, but it was the people's idea.)

So they cheated each other.

So that was the first time that madness came into this world, from the corn and the tobacco.

So the corn speaks to the tobacco. Corn says, "You are nothing, Tobacco, only the old people smoke you. For my part, man and woman and the children eat me, and I am raising the young people."

Tobacco spoke. "I think the same about you, corn, you are nothing. For my part, the medicine men smoke me, and doctors the sick people."

So they were talking to each other, which is not right. So they felt sorry for the mean words that they have spoken while those people didn't try to help them out, but just let them speak those mean words. So the tobacco went out and went towards the west.

So he followed down this river (Gila), by us, and when he got to a certain distance he felt more sorry. So he cried, and this is how he cried.

Black bob cat
Toward the sunset
is going
Hay ya ha'a haa--(crying).

(No meaning, just the way his mind went when he was sad.)

So he went and stopped at the west part of the Navajo country. While the corn stayed here for four days, and he was waiting for these older people to bring him some soft feathers and beads, so that he might not leave the country. But instead, these people didn't give him what he needed, and Corn sings one song.

I deep beat (deep win)
Tobacco was mad
And was talking.
The people, they will get [a?] soft feather
And give it to me
The people will get a bead
And give it to me.

So he got out, and went toward the east. He got all the corn that the people had and took it with him, and the people were hungry. The old people also were scarce in tobacco.

So Siuuhu, when he saw this thing happen, he didn't like it.

Since the people learned how to get mad, Siuuhu made a rule that every morning the old people were to talk to their young children and tell them what was the right thing to do.

So when the people wanted something to smoke real bad, they got one man to go after the tobacco, and bring him back home.

So this man went to the tobacco and tried to tell him to come back, and Tobacco said he don't want to come back. And Tobacco said that the "corn called me some mean things, so I don't want to go back."

So this man prayed to the Tobacco, and told him the Tobacco should sympathize with him, and go back home with him.

So the tobacco didn't want to come home, but he gave the man one of his little seeds and told him that when he should get the seed to his home, he should prepare the ground and put the seed in it, that sometimes the tobacco would come out pretty good and sometimes it won't.

So if anybody wants to know what this man was planting, he would not tell them what he was planting. If this man tells the people what he was planting, the tobacco wouldn't come up.

So he brought it home and planted the tobacco and kept it a secret and it came out and it was good tobacco. So today we have that tobacco, and that tobacco they raise here was smaller than that tobacco that went toward the west and stayed over there.

This corn that went toward the east stopped in the east and sang two songs:

The big corn stalks
They called me corn

'I have come out here.

My stalks are stout
And are standing straight up
My fruit is stout
And are standing straight up.

So the people were hungry here.

Just south west of here there are signs where the people used to live, and that place they call called top-oiduk, or rabbit farm. (East of Santa Cruz, signs of a ruin). The reason they call that top-oiduk there used to be a lot of rabbits there, and when the people planted their crops, the rabbits would come and eat their crops up.

From there at this top-oiduk, one women comes over to Superstition Mountain [40 miles eastward], and gathers some [cholla] cactus fruit, and bakes them in the ashes, because they were hungry.

While this corn was standing in the east, he saw that this woman was doing this thing. The woman happened to be a young girl, and she was pretty, so this corn loved the girl, and came towards her.

So when he came to a mountain at a certain place over in the east, that mountain called Vatcum (means a hole), when he got to the base of this mountain he sings a song:

I have gone
I am going
And now I am passing by Vatcum
Flat-headed (corn, me)
Little bit crazy (I am).

(This refers to freak corn with flattened end.)

Then he came to another mountain called White-thin, and sings a song.

I am passing by White-thin (Stoa Kom)
Flat-headed (corn)
(I am) little bit crazy, chupa (like a woman).

As he gets closer to the woman he sings this song:

(There is a word for a little bit crazy applied to a man, and another word as applied to a woman, he uses the term applied to a woman.)

As he gets closer to the woman he sings this song.

I went and met a girl
I ran and met this girl
A cliff which decorated itself very pretty
I'm getting closer to top-oiduk
Hay do way ha'an.

(Cliff is a symbol of the minds meeting together, the girl want a man, and corn wants a woman, means maybe he was going through rocky country and everything was pretty, just like when one goes to meet a woman.)

(Chupa is applied to a woman who swears and smokes and goes with bad boys, a little, but not much.)

So this corn man went and came to the girl's home, and stayed with the girl for one day. So this corn man told the girl that his head was feeling itchy, and so the girl looked for something in the corn man's hair and got a worm out of his hair. She put that in her mouth and chewed it up. The corn man was decorated and when his clothes kind of peeled off in front of his chest, it appeared like he had kernels of corn on himself.

So when the sun was about to set in the west, the corn man went out of the house, and took one of his arrows and stuck it in some cactus fruit that they had cooked. So they took this cooked cactus fruit out, and it appeared that it wasn't cactus fruit that was cooked, but it was pumpkin and corn that was cooked.

Then this girl got this pumpkin and the corn and went away. So this girl was glad, and she sang two songs:

You have made a woman out of me
And you have made a carrying basket for me
Which is made of corn tassels.
(Repeat)

You have made a woman out of me
And you have made a basket for me
Which is made of pumpkin blossoms.
(Repeat)

So this girl went and came to where her parents were and she gave them this pumpkin and the corn and they ate it.

So this thing happened four times, she went back to where this corn man was and got the same thing from him four times.

The fourth time that she went over there the corn man talked to this girl and told this girl that when she could get back to where her people were she could talk to them and tell them to make a special house for this corn man to live in. He was going to live with the people.

So for this reason the corn man told this girl that they should make a special house for him. It was the reason that he was going to stay with the people. And he also told her

to tell them also to clean up their homes and get everything ready such as dishes and pots; they must turn everything up.

So when the fourth day was up, the corn went. When he started to go, the corn s sings two songs:

Towards the west
Closer to the setting of the sun
Where is much understanding
To this land I come
And over this land
It is raining corn.

Towards the west
Close to the setting of the sun
There lies some land
Over this land
The clouds are roaring
And it's raining pumpkins
Over this land.

So when this corn got to that land where he mentioned, just to give you an idea how he got over there, it came like the hail, it rained corn, and it rained pumpkins in every dish, it filled everything that they had turned up.

When this corn got there, he went into the house that the people had made for him, and this girl that he had just met came and lived with him.

When some of the people saw this thing happen, some of them did not believe that what they saw was really corn or pumpkins.

When this corn found out that some of the people did not believe him, he sings two songs.

It is true that I am Corn
And you see that I have white kernels.

It is true that I am the pumpkin
With white seeds.

So then the people prepared and ate it and they were filled. So they gathered this corn and pumpkin and they stored it away for their food.

While all this time this worm that the girl chewed up turned into a baby in the girl's womb. So this girl stayed with corn man four times four days. When the fourth fourth day was up, the baby was born. When this baby came, it was the child of corn man. The baby was a girl.

When Siuuhu saw this, he didn't like it. So this baby was taken care of at their home for four days. on the fourth day a young girl picked up this baby in her arms, and she was to take it someplace. On the way somehow she dropped the baby and the baby died.

The reason that this thing happened, it was Siuuhu's scheme that this baby should not live. So when this corn saw this thing happen he got mad and went off back to the east.

And this was the first time the people saw death.

Source: Hayden, Julian. 1935. Pima creation myths. TMs [photocopy]. Arizona State Museum Archives, University of Arizona, Tucson.

APPENDIX E WORKS CONSULTED

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